



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Michael C. Powers, et al.
Serial No.: 09/110,103
Filing Date: July 1, 1998
Group Art Unit: 2163
Examiner: M. Irshadullah
Title: SYSTEM AND METHOD FOR IMPORTING
PERFORMANCE DATA INTO A PERFORMANCE
EVALUATION SYSTEM

Assistant Commissioner for Patents
Washington, D.C. 20231

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Dear Sir:

DECLARATION PURSUANT TO 37 C.F.R. § 1.131

I, the undersigned, hereby declare and state that:

1. I am over the age of 21 years, of sound mind, and competent in all respects to make this Declaration.

2. I am an inventor of the subject matter of the above-referenced Application, entitled "*System and Method for Importing Performance Data into a Performance Evaluation System*," filed on July 1, 1998 (the "Application"). This Application claims the benefit of U.S. Provisional Application Serial No. 60/084,794, entitled "*Method and System for Determining the Performance of a Call Center Agent*," filed on May 8, 1998.

3. The Examiner rejects Claims 1-17 (the "Claims") of the Application in an Office Action mailed April 25, 2002, in whole or in part, based on United States Patent No. 6,044,368, issued to Powers entitled "*Method and Apparatus for Multiple Agent Commitment Tracking and Notification*," having a filing date of April 30, 1998 ("the Reference").

4. I developed an understanding and appreciation of the subject matter of at least the Claims prior to April 30, 1998. As an example, prior to April 30, 1998, I contributed to

the attached document, entitled "*P&Q Review Product Description*," dated March, 1998, which addresses the subject matter of the Claims. This document, in turn, is derived from the "*Teknekron Performance Suite High Level Design Document*," dated April 25, 1997, which also addresses the subject matter of the Claims. Furthermore, beginning prior to April, 1998, I worked diligently to reduce the subject matter of the Claims to practice. The "*P&Q Review Product Description*" includes descriptions and screenshots of the P&Q Review system, which establishes that the subject matter of Claims 1-17 were reduced to practice in an operational software system prior to April, 1998.

5. I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true. Further, I declare that these statements are made with the knowledge that willful false statements, and the like so made, are punishable by fine or imprisonment, or both, under Section 1001, Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the Application or any patent issuing thereon.


Declaration pursuant to 37 C.F.R. § 1.131 in regard to 09/110,103

Signed this _____ day of _____, 2002.

Michael C. Powers

Declaration pursuant to 37 C.F.R. § 1.131 in regard to 09/110,103

Signed this 1 day of July, 2002.


Douglas A. Sudberry

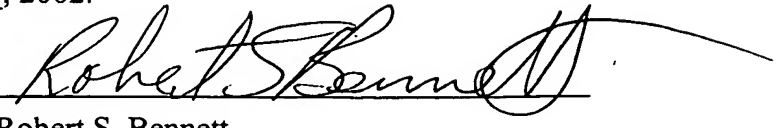
Declaration pursuant to 37 C.F.R. § 1.131 in regard to 09/110,103

Signed this _____ day of _____, 2002.

James A. Eiler

Declaration pursuant to 37 C.F.R. § 1.131 in regard to 09/110,103

Signed this 10 day of July, 2002.


Robert S. Bennett

Declaration pursuant to 37 C.F.R. § 1.131 in regard to 09/110,103

Signed this _____ day of _____, 2002.

Clifford R. Phillips



Teknekron Performance Suite

High-level Design Document

Document #

Date	Author/Editor	Revision
[REDACTED]	Jim Eiler	Beta Pre-Release
[REDACTED]	Jim Eiler	Version 1
[REDACTED]	Derrick Repep	Design Review Corrections

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A current copy of this document will be maintained in electronic form on the bulletin board for reference.

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About This Document

This section describes:

- The purpose of this High-level Design Document
- Other documents that apply to the solution referenced in this High-level Design Document
- A glossary of new or changed terminology required for understanding the solution referenced in this High-level Design Document

Document Purpose

The purpose of this document is to outline several aspects of the Teknekron Performance Suite product. These include the definition and description of the high-level system view, user view, system configuration, database design, and implementation considerations.

As always, the goal is to select approaches that minimize our investment in changes to the existing Teknekron Infoswitch product base and facilitate the integration and use of, as yet undefined, next-generation technology.

Other Documents

Document #	Document Name
	Product Overview
	Microsoft® Advanced Data Connector documentation
	Microsoft® Internet Explorer Scripting Object Model
	Microsoft® ASP Roadmap
	92 in 97 document
PQREQ002	P&Q Review 3.0 Marketing Requirements Document
AQREQ001	AutoQuality 3.0 Marketing Requirements Document
171-0008-001	Quality Suite 3.0 Marketing Review Document

Revision Notes

Beta Pre-Release

This release is the unedited, collaborated version of the high-level design document. It contains the collection of documents contributed by various members of the team.

Version 1

This version has not been reviewed by the necessary parties. Pending the review, changes will be made based on feedback from the development and marketing groups.

Glossary

ADC - (Advanced Data Connector) A set of technologies that uses Open Database Connectivity (ODBC) via HTTP and DCOM to enable the implementation of a multi-tiered application.

ADF - (Advanced Data Factory) The default ADC business object for database access via HTTP or DCOM.

ADS - (Advanced Data Space) That part of ADC which acts as the client proxy for marshaling standard Automation data types as well as Recordsets.

business object -

class of service - a set of access privileges applied to a user's profile.

COM - (Component Object Model) The basic architecture for creating reusable, independent components.

CRUD - General Database functionality meaning: Create, Read, Update, Delete.

data importer - the device used for gathering data from outside sources and importing it into a form that Teknekron Performance Suite can use.

DBMS - (DataBase Management System) Refers to a server that supports client/server functionality.

DCOM - (Distributed COM) COM objects that may be run over a network.

evaluation - the outcome of the completed evaluation guideline.

evaluation data - information used in the evaluation process.

evaluation expression - a mathematical expression used to calculate productivity values.

evaluation guideline - a set of performance areas combined for use in performing an evaluation.

evaluation plan - a list of items needed to perform an evaluation.

IIS 3.0 - Microsoft's Internet Information Server, version 3.0.

level - a collection of members who can be grouped together.

members - people (usually call center agents) who are monitored and evaluated using the tools provided with Teknekron Performance Suite.

ODBC - (Open DataBase Connectivity) An industry standard for accessing databases.

organization - group of personnel who are part of the system; includes users and members.

performance area - a category of questions and/or evaluation data that relates to a particular area of job performance.

personnel administration - the component used for setting up and managing the organization.

recorder - the device used to produce voice and screen recordings.

reports - displays of collected data that vary in detail and layout.

TCP/IP - Primary network protocol used by the system.

TPS - abbreviation for Teknekron Performance Suite.

Brief Solution Description

The Teknekron Performance Suite of Products combines the evaluation features of P&Q, the monitoring functionality of AutoQuality, and the Desktop Screen Capture technology in order to provide the customer with an updated, comprehensive set of tools to be used for the management of a call center.

The functionality is delivered as a three-tiered client/server system integrating an industrial strength server with a full-featured relational database management system (DBMS) deployed on an Internet/Intranet platform enhanced networking capabilities via TCP/IP.

The server platform is NT 4.0 (server or workstation). The DBMS is SQL Server 6.5. This design breaks the application into three views representing the three tiers:

- **User View** - Commonly referred to as the “client” or the “presentation tier”, the User View provides the GUI and page flow for the system. The “client” represents a local computer where browser software displays a Web page.
- **System View** - Also known as the “application-server tier”, the System View represents a Web server where the System DSN is defined, and where instances of the application’s business objects are created. As the middle tier, it contains business objects, standard database access, and any business rules defined in the system.
- **Data View** - Also called the “back-end tier”, the Data View contains the database and other potential data sources. The Data View represents a server computer running a DBMS, such as SQL Server, Access, Oracle, or Informix.

In addition to these views, sections are included to pay special attention to the reporting facilities, the system settings, and system status information.

User View

The user view represents the presentation tier in the three-tiered system. It is often referred to as the client. The GUI layout and page flow provide the basis for the User View. In particular, this section describes:

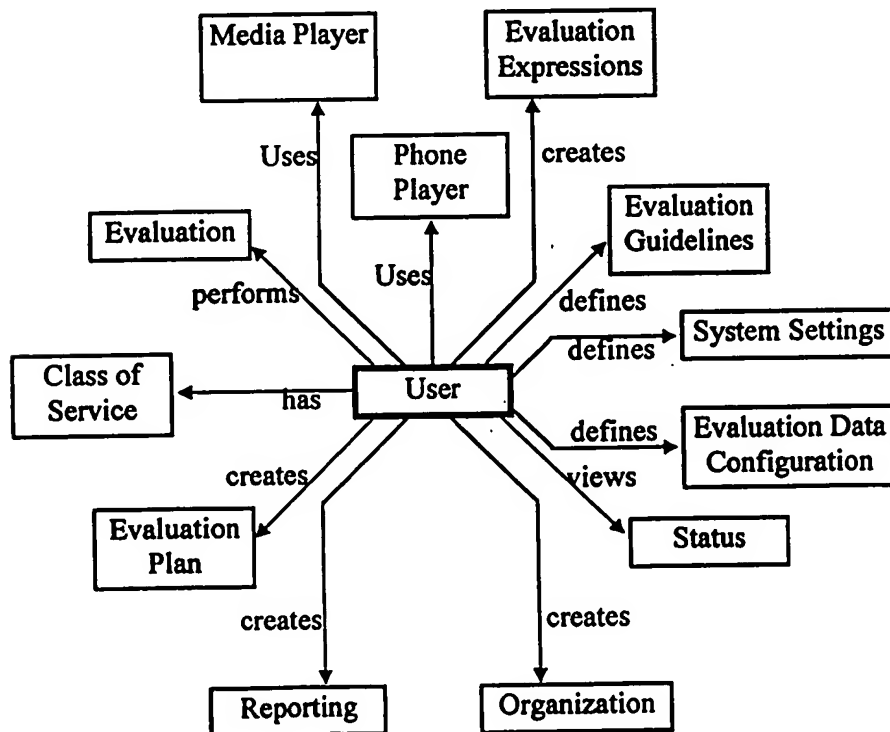
- what a user is and how a user gains access to the system through various permissions.
- the high level user interfaces and their interaction with system components.

Users and Class of Service

Users are defined as people who perform various functions within the system. These functions may be as simple as running a report or viewing an evaluation. These functions might include any number of administrative tasks, including creating organizational layout or the scheduling of recordings. It is important to note that a user does not have to be a member in the system (but can be if appropriate). Also, a member is not necessarily a user.

Users are given access to system functions via a class of service. A class of service explicitly defines a set of functions that a user is allowed to perform; assigning a class of service to a user gives that user access to the defined set of functions (and restricts that user from any functions not explicitly included).

The broad categories of function types available to the user can be defined as follows:



User Interactions

The next section describes those portions of the system to which the user can have direct access. It provides a high-level interface with which the user interacts. Page flows (means to perform certain actions) are given where appropriate. Note that a page flow shows only how a user would access a function; other navigation is not represented (to improve clarity).

Some pages use filters. A filter is a way to restrict the information displayed on the page to only those areas of interest. For example, if a user wants to view only those members with a certain keyword, the member display can be “filtered” to only show those members.

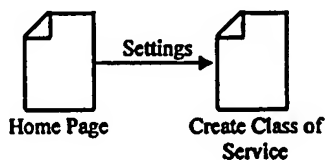
The graphic representation of page flow does not show filter pages explicitly; rather, a page that can be filtered uses a different graphic to represent the filter.



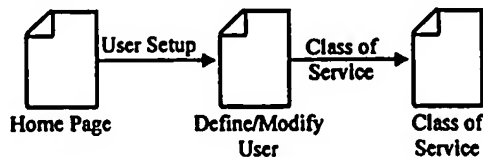
Class of Service

As stated in the previous section, every user has an associated list of system functions to which the user has access. This list is defined by a unique class of service.

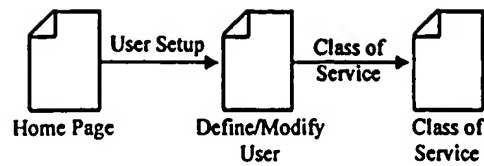
When a user (with sufficient privilege) wants to define a new class of service, the user creates it via the “Create Class of Service” page. The page flow (starting from the Home Page) is denoted as follows:



When an existing user is defining a new user, the system allows a class of service to be assigned to the new user. This assignment is performed via the “Class of Service” page, which is accessed from the “Define User” page. The page flow (starting from the Home Page) is denoted as follows:

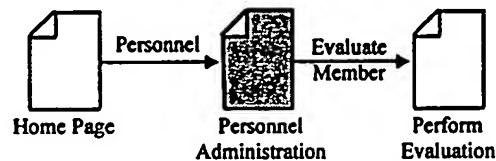


If a user’s class of service needs to be changed (at some future time), the change would be made by editing the user’s profile and selecting a different class of service. The page flow (starting from the Home Page) is denoted as follows:



Evaluation

The ultimate goal of the system is to allow users to evaluate members' performance. Depending on which portions of the Teknekron Performance Suite are licensed and the selected evaluation plan (see below), an evaluation can take a variety of forms; in general, an evaluation is either a set of recordings or a set of computed scores. In either case, the evaluation is completed on the "Perform Evaluation" page. The page flow (starting from the Home Page) is denoted as follows:



It is important to note the various functions available on the "Perform Evaluation" page. If the AutoQuality component of the Teknekron Performance Suite is licensed, the user will have been able to schedule voice recordings; these voice recordings can be played from the "Perform Evaluation" page. Similarly, if the Desktop Screen Capture component is licensed, the user will have been able to schedule screen recordings; these recordings can be played from the "Perform Evaluation" page (via the Media Player – see the Media Player section for more information). Finally, if the P&Q Review component is licensed, the user will have been able to require an evaluation guideline; the questionnaire is completed from the "Perform Evaluation" page.

Evaluation Data Configuration

If the user uses the Data Provider to obtain data from the switch (or other external sources), this data must be explicitly directed into database fields. These fields are then used to create evaluation expressions.

[/// to do: complete definition and diagram]

Evaluation Expressions

As explained in the Evaluation Guidelines section (below), a productivity score can be associated with every performance area. This productivity score is calculated by taking selected productivity data (obtained through the Data Provider or entered manually) and

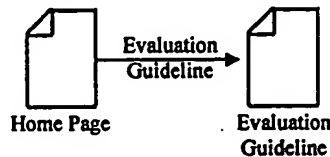
applying some user-derived formula on it. This user-derived formula is called an evaluation expression.

The actual content of the evaluation expression depends on what the performance area evaluates. However, the end result is the same: the evaluation expression creates a productivity “target” score. This target score will be used as a way to determine the productivity percentage that a member achieves in that performance area.

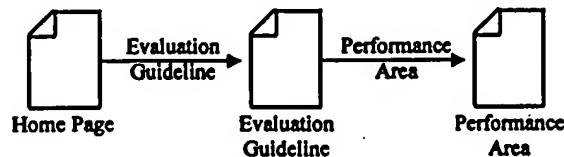
Since an evaluation expression is attached to a performance area, the performance area must be created first. See the **Evaluation Guidelines** section (below) for page flow information.

Evaluation Guidelines

An evaluation guideline defines which areas of performance are of interest for a particular evaluation. Every performance area can have two types of data: quality data and productivity data (quality data is a subjective grading of the caliber of a member’s performance; productivity data is an objective measurement of a member’s achieved productivity as a percentage of some target productivity, with any score over 100% being reflected as 100%). An evaluation guideline is therefore a collection of performance areas that define an evaluation. The page flow (starting from the Home Page) to create a new evaluation guideline is denoted as follows:

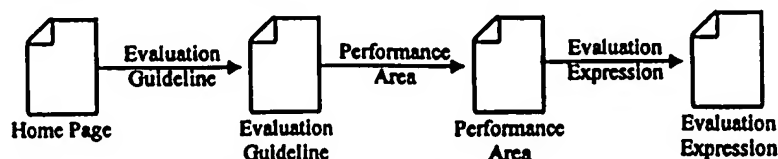


To define an evaluation guideline, all of the desired performance areas must exist. If they do not, the user must create them. Performance areas are created via the “Performance Area” page. The page flow (starting from the Home Page) is denoted as follows:



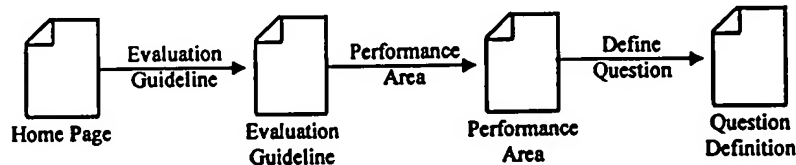
Each performance area can generate a productivity score or a quality score (or both). The productivity score is generated by creating an evaluation expression for a performance area. See the **Evaluation Expressions** section (above) for more information concerning the content of an evaluation expression.

To define an evaluation expression, the user selects fields from the Data Provider and creates a mathematical expression using supplied mathematical functions and operators. Evaluation expressions are created via the “Evaluation Expression” page. The page flow (starting from the Home Page) is denoted as follows:



See the **Evaluation Data Configuration** section (above) for further information about the field definitions for the Data Provider.

The quality score is generated by having the user answer the set of questions associated with the performance area. The user creating the performance area must define each of the questions needed to evaluate the subject of the performance area. Questions are created via the "Question Definition" page. The page flow (starting from the Home Page) is denoted as follows:

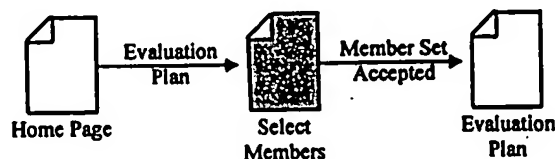


Once the user has defined the question set and/or evaluation expression, the user names and saves the evaluation guideline.

Evaluation Plan

As mentioned previously, the ultimate goal of the system is to allow users to evaluate members' performance. This evaluation is accomplished by (typically) gathering information about a member's performance and then (optionally) scoring the information relative to some standard. Depending on which portions of the Teknekron Performance Suite are licensed, the information used can come from various sources, and can be collected either as an automated task or a manual entry task. The set of tasks needed to complete an evaluation is called an evaluation plan.

A user creates an evaluation plan through a series of steps. First, the user selects those members for whom an evaluation plan is to be created. Next, the user selects an existing evaluation guideline to use; with sufficient privilege, the user may add (or remove) performance areas to (from) the evaluation guideline to form a customized evaluation of the member. Evaluation plans are created via the "Evaluation Plan" page. The page flow (starting from the Home Page) is denoted as follows:

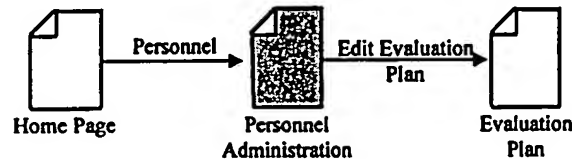


If there are automated tasks defined in the evaluation guideline (such as voice recordings, desktop recordings, or performance data collection), these tasks are scheduled and performed automatically. If the evaluation plans contains manual tasks (such as entering

manual productivity data or completing a questionnaire), the user can perform these tasks at any time during the execution of the evaluation plan (although it would be typical for the questionnaire to be completed as the last task).

After all automated tasks are completed, the user will be notified of any outstanding manual tasks (if such notification is enabled). If the P&Q Review portion of the Teknekron Performance Suite is licensed and the user has included an evaluation guideline as a part of the evaluation plan, the user will be able to review any associated recordings (if applicable) and complete any questions pertaining to the evaluation guideline. See the **Evaluation** section for the page flow pertaining to the completion of the questionnaire.

A user can modify an evaluation plan through the “Personnel Administration” page. The user selects the member’s evaluation plan and requests to edit it. The page flow (starting from the Home Page) is denoted as follows:



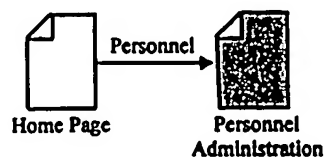
Deleting existing evaluation plans is actually performed from the “Personnel Administration” page, with a dialog box confirming the delete operation.

Organization

The list of members known to the system is divided into sets; each set can be assigned to a responsible user (or set of users), giving the user(s) the ability to perform all of the functions (allowed under the user’s class of service) on the members in the set. Each “set” is represented as a level; the complete member list, divided into levels, is called the organization.

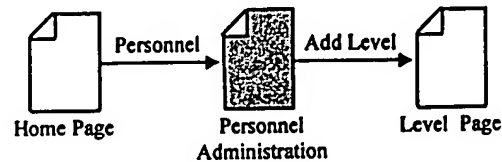
To create the organization, a user must create at least one level, and then create members beneath the level. Ordinarily, a level represents a cluster of similar elements. These elements can be either sub-levels or members, and usually follows a company’s organization chart. The lowest level of an organization chart lists individual employees; similarly, the lowest level of the organization lists individual members.

Creation or modification of the organization is accomplished via the “Personnel Administration” page. The page flow (starting from the Home Page) is denoted as follows:

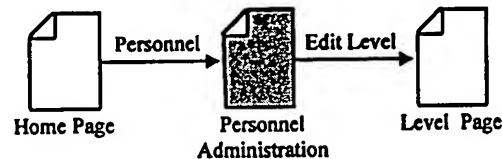


From the "Personnel Administration" page, the user can perform functions on levels, members and evaluation plans. This section covers functions on levels and members (see the **Evaluation Plan** section for information concerning evaluation plans).

Levels can be added to an existing level via the "Level" page. The page flow (starting from the Home Page) is denoted as follows:

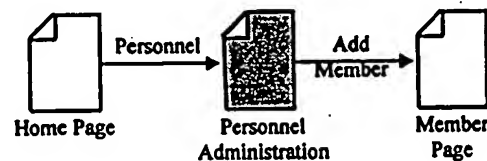


Editing existing levels is also performed on the "Level" page. The page flow (starting from the Home Page) is denoted as follows:

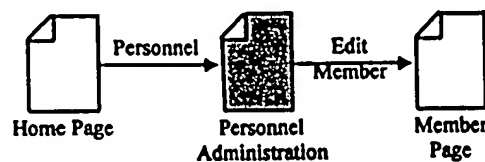


Deleting existing levels is actually performed from the "Personnel Administration" page, with a dialog box confirming the delete operation.

Members can be added to an existing level via the "Member" page. The page flow (starting from the Home Page) is denoted as follows:



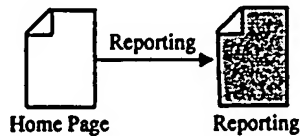
Editing existing members is also performed on the "Member" page. The page flow (starting from the Home Page) is denoted as follows:



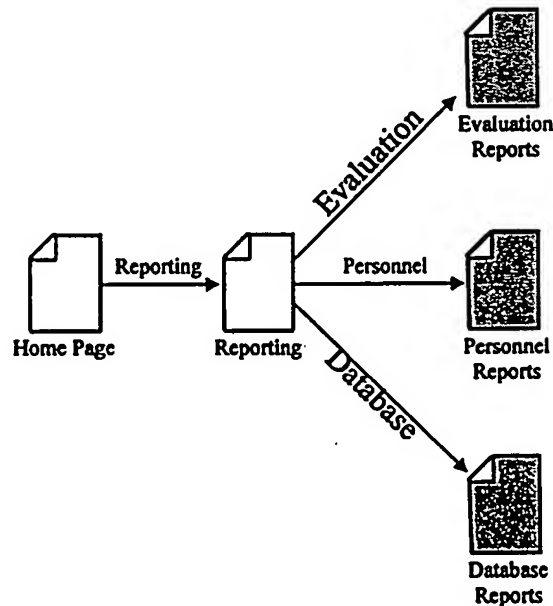
Deleting existing members is actually performed from the "Personnel Administration" page, with a dialog box confirming the delete operation.

Reporting

A user may request the system to generate a multitude of reports from the collected data. These reports can contain text, charts, or both. The reporting functions can be accessed via the "Reporting" page. The page flow (starting from the Home Page) is denoted as follows:



In the above representation, the "Reporting" page is actually a collection of pages, rather than a single page. The general intention is to cluster reports on similar topics (database, members, evaluations, and so forth) on the same reporting page. The filter that operates on each reporting page will need to be tailored to fit that page's topic. The most probable page flow (starting from the Home Page) will look something like this:

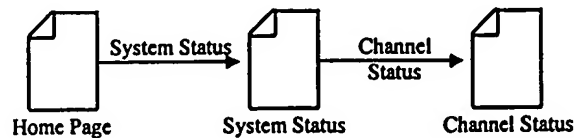


Other reporting areas will be defined during the detail design and implementation phases of the project.

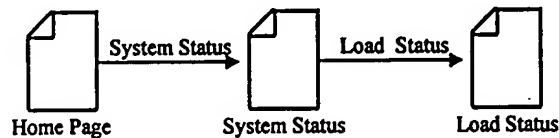
Status

There are several types of status that the user may request to view. Each is defined in a paragraph below, with an accompanying page flow.

If the AutoQuality or Desktop Screen Capture component is licensed, the user may request to view the status of the channels for that component. This is accomplished via the “Channel Status” page. The page flow (starting from the Home Page) is denoted as follows:



If the AutoScheduler component is licensed, the user may request to view the status of the recording load for whichever component (AutoQuality, Desktop Screen Capture, or both) is scheduled via AutoScheduler. This is accomplished via the “Load Status” page. The page flow (starting from the Home Page) is denoted as follows:



The status of a particular evaluation plan is viewed from the “Personnel Administration” page. If the user selects a single evaluation plan, the tasks associated with that evaluation plan will be displayed. Listed beside each task will be its status and, if completed, the date and time of completion. See the **Evaluation Plan** section for more information about the “Personnel Administration” page.

[/// to do: define other status components, as needed]

System Settings

[/// to do: define system settings, as needed]

Media Player

The Media Player is a tool that is used to display previously-captured screen recordings during evaluation. If the screen recording has an associated voice recording, the Media Player presents these two recordings synchronously.

The Media Player is accessed from the “Perform Evaluation” page. See the **Evaluation** section for page flow information.

In its current version, the Media Player will be a “floating” frame above the questionnaire; as such, it can be moved around the screen without affecting the

questionnaire below it. When the user presses the "Play" button, the Media Player will move to the upper left corner of the screen and condense to only the "Stop" button. The screen recording will be played in a window beneath the Media Player. When the user presses the "Stop" button of the Media Player, the browser window will be placed above the screen recording window (screen Z-order), and the Media Player will revert to its full size version above the browser window. The user will be able to toggle between the browser window and the screen recording window. The Media Player may be iconified but, when visible, must remain on top of all other windows at all times. The Media Player may not be maximized or resized.

[/// to do: comment on screen annotation mechanism]

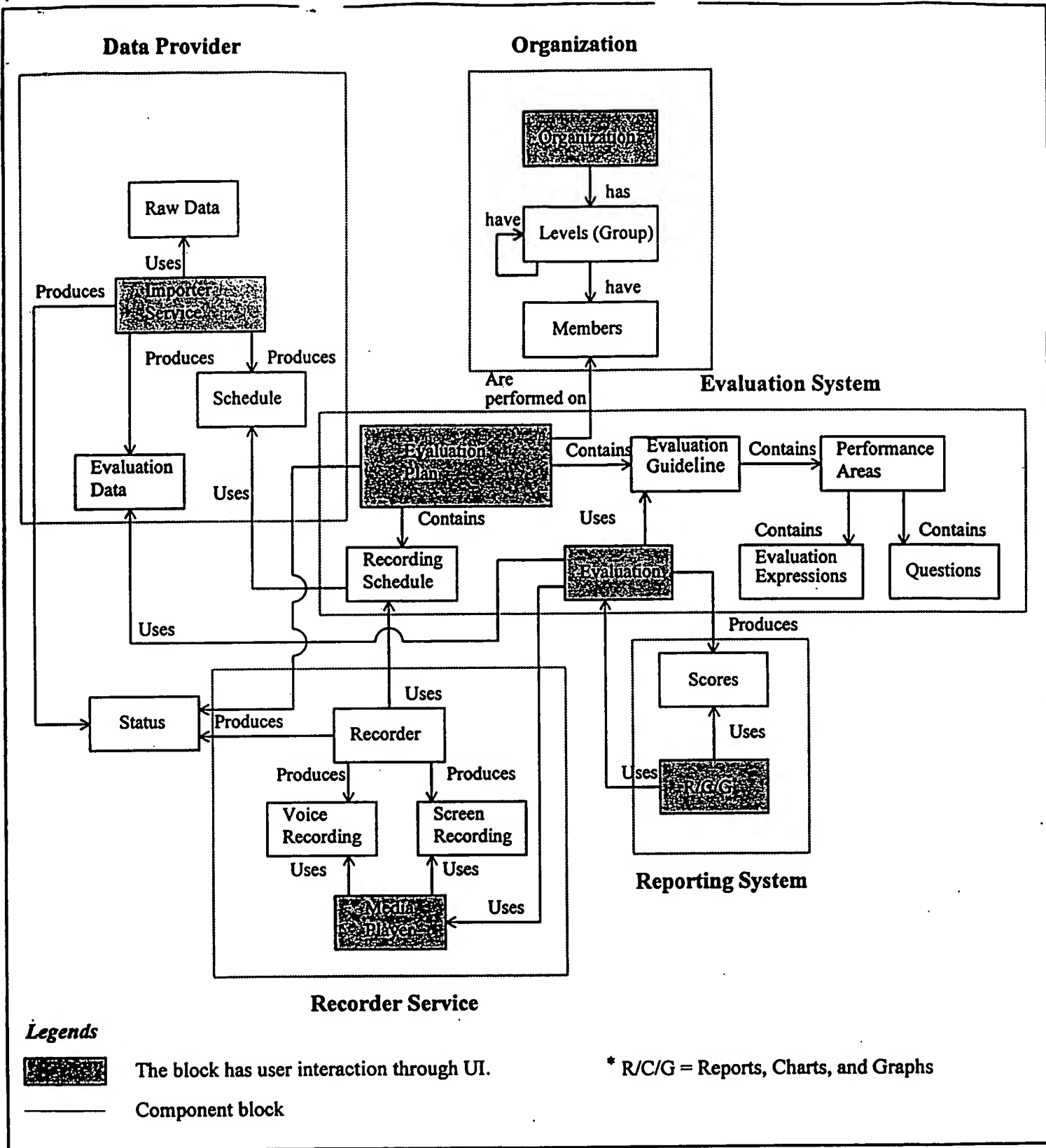
System View

The system view represents the middle tier of the system. The middle tier does not define any user interaction. It typically defines interfaces between the other system components as well as the data access interfaces. This section:

- will provide a graphical representation of the system
- will describe the high level system components
- will define the Business objects

System Representation

The following drawing is a representation of the system components that make up the middle tier of the Teknekron Performance Suite application.



System Components

There are five system components that comprise the Teknekron Performance Suite. Below is a listing of those components and a description of them.

Organizational System

A fundamental component to the Teknekron Performance Suite that allows a company to setup the system in a way that best reflects its organizational layout. The flexibility of this component provides for the creation of a hierarchy consisting of levels and the grouping of members within those levels. Levels are given a name for display and sorting purposes. Also a user-defined code may be added to give an organization the ability to equate a level to something else (i.e. a cost center) for the purpose of alternate sorting and reporting.

Members of an organization can be added to a level. Members are those individuals on which functions of the system are performed. Some of primary functions include recording a member's voice, recording a member's desktop activity, and performing evaluations. Membership within a level consists of several attributes dealing with notification, identification, and location.

Data Provider

The Data Provider consists of three major pieces: the importer service, the scheduler, and report drivers. It is used to import productivity reports generated by ACD and Work force schedules generated by the Work Force Management system (WFM) and save the information into database tables.

Importer Service

The importer service collects productivity report/WFM schedule data. It can collect data from multiple communication channels, including a serial port, FTP port or from a file on the disk. When importing data, the service uses an import configuration data provided by the user. The import configuration provides information about the communication channels, report format, and parameters to setup the selected communication channel. The imported report/schedules are always stored in the <Import> directory on the server machine, which is also configurable. Refer to *Property Configuration* for more information on various configurations relating to importing data.

Once the files are imported into the server machine, the importer service uses the report drivers to parse the report files and save them as common space (or comma) delimited files. These files are then imported into the database.

The importer service will be implemented as an separate executable. TPS allows users to schedule import of data at a specified time or import it immediately.

Report Drivers

Report drivers convert the reports generated by ACD switches or WFM systems into a format that is generally understandable by TPS components. The report drivers parse the

report files, and save them in a standard format. These files are then imported into the database tables and stored in the database tables as specified in the import data configuration. Refer to the section *Property Configuration* for more information on configurations.

Report drivers are implemented as DLLs, one each for an ACD or a WFM system supported by TPS.

The following ACD report driver formats that will be supported:

- Teknekr n Infoswitch MIS (Daily Agent Performance)
- Rockwell ERS (Staff Performance Primary (Daily))
- Northern Telecom MAX (Custom Report)
- Northern Telecom (Data Stream Report)
- AT&T Call Management System (Daily Group Attendance)
- AT&T Call Management System (Daily Group Summary)
- Rolm 9006 (Agent Performance Summary Report)
- Rolm 9006 (Agent Performance Distribution Report)
- Rockwell Spectrum, IMS (Agent Performance Summary)
- Comma delimited files
- Column Position Report

The following WFM system schedules will be supported:

- TCS
- IEX
- Cybernetics
- Pipkins

Scheduler

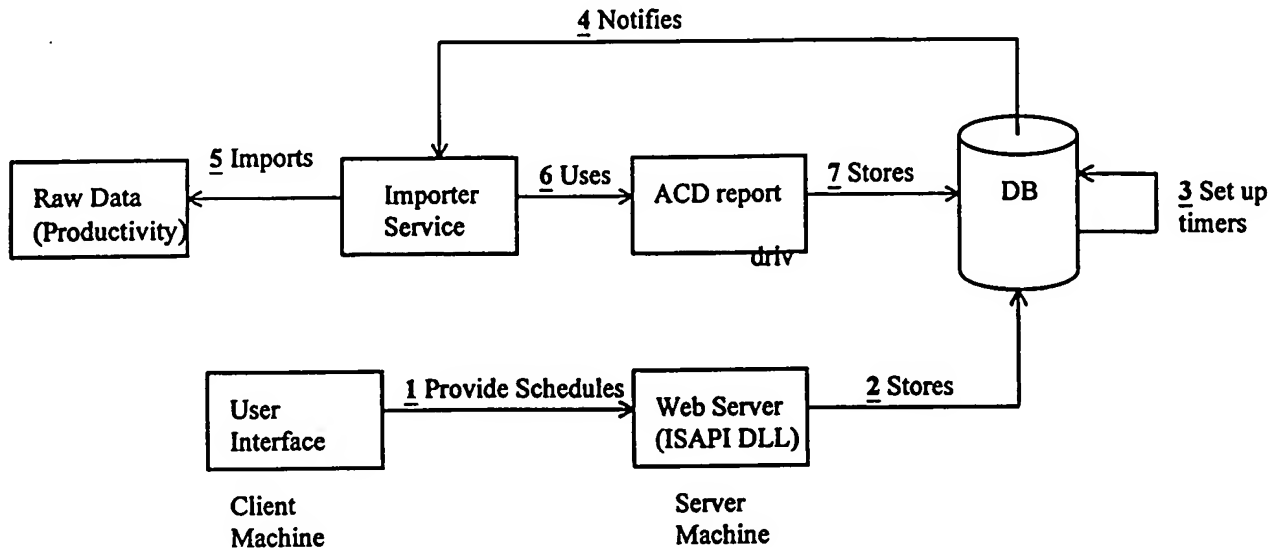
The scheduler component notifies the Importer Service of data collection schedules (for importing productivity report or work force schedules). The scheduler uses the *Database WFM Schedule Record* table and the *Import Productivity Data Schedule Record* table from the database to manage the schedule information. Depending on the type of data imported, TPS provides two types of schedulers: scheduler to import productivity data, and scheduler to import WFM schedules.

Scheduler for Importing Productivity Data

This scheduler will be implemented using the SQL database engine task scheduler. The task scheduler uses the import schedules stored in the database to setup timers. It then notifies an application and/or DLL when a timer expires. In case of TPS, the task

scheduler will notify the Importer application to collect data when the timer goes off.

Figure 1. Import Productivity Data into DB



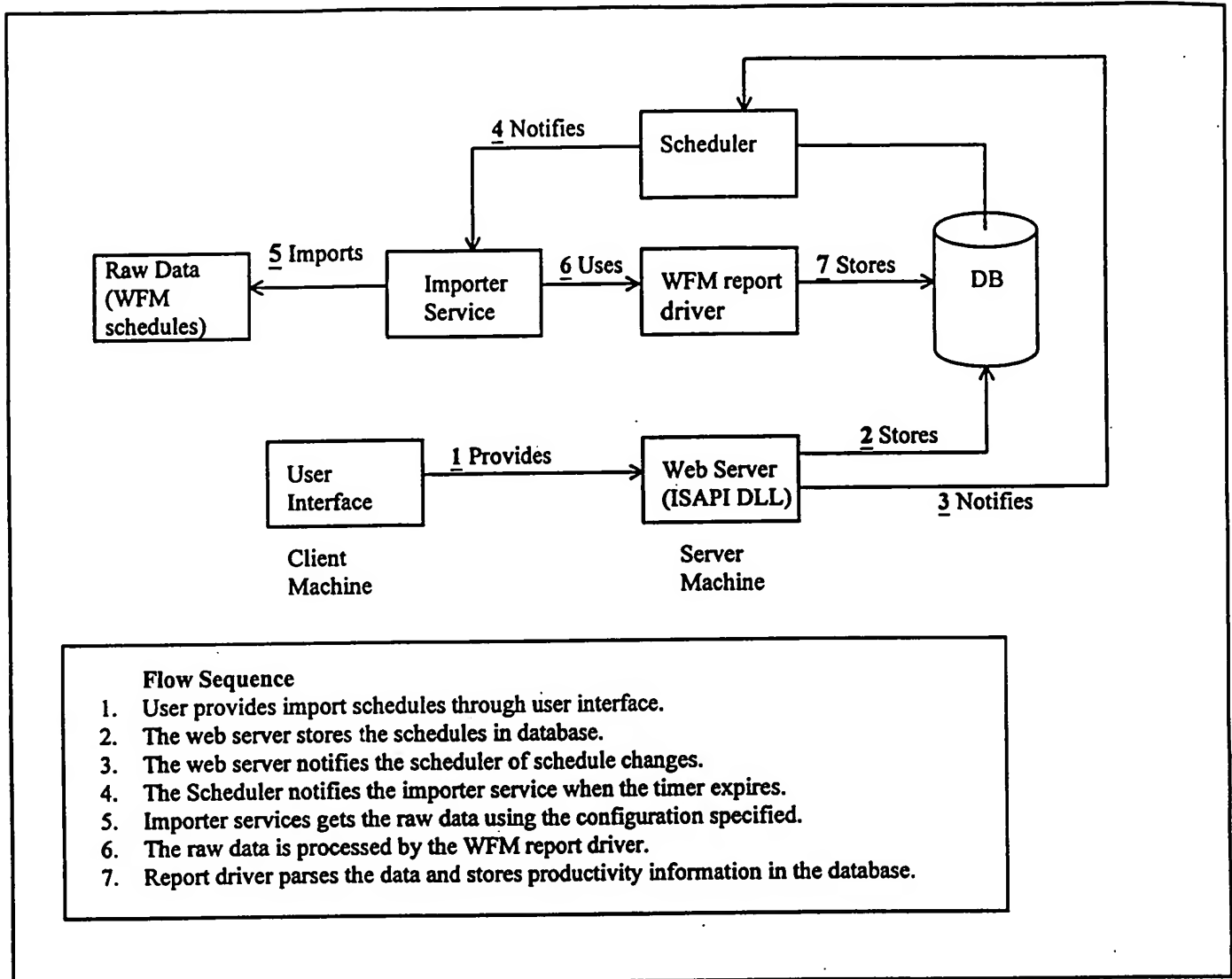
Flow Sequence

1. User provides import schedules through user interface.
2. The web server stores the schedules in database.
3. Database sets up timers to go off according to the schedule.
4. The Database notifies the importer service.
5. Importer services gets the raw data using the configuration specified.
6. The raw data is processed by the ACD report driver.
7. Report driver parses the data and stores productivity information in the database.

Scheduler for Importing WFM data

This scheduler is implemented as a DLL using low level operating system timer routines. The scheduler DLL reads the database to keep track of Import schedules and setup timers accordingly. When the timers expire, the DLL notifies the Importer service to collect data. This DLL is also used to schedule member monitoring using CP. Refer to CP component block for more details.

Figure 2. Import WFM Schedule into DB



Property Configuration

Data Provider Properties Configuration

The data provider service allows importing of data required by TPS. The service can import data through serial ports, FTP ports, or from a text file stored on the disk. To facilitate importing data, TPS provides various properties that a user can configure. These properties are used to select the report file formats and the communication channels. In addition, the user sets the properties to configure the communication channel itself.

When importing data through a serial port, a user can configure the following parameters:

- COM port to use
- the baud rate
- flow control
- parity
- number of data bits
- number of stop bits

When importing data through an FTP port, a user can configure the following parameters:

- machine name
- source directory
- source file

When importing a text file from the client disk, the user can configure the following parameters:

- source directory
- source file

In all cases, the imported data file is stored in the <Import> directory, from which it will be imported into the database. The <Import> directory is specified during the initial setup of the product, and can be modified later using the configuration utility. Also, the user specifies the report format and the communication properties. The selected communication properties and report format are saved in a configuration file. This configuration can be used to import data as per a schedule or on demand.

Question: are we missing screen to import productivity data manually ? How about screen to import work force management schedule?

Auto Scheduler

Purpose

Auto Scheduler is to automate the monitor scheduling process.

Workforce Management Systems

Auto Scheduler supports schedules from TCS, Cybernetics, Pipkins and IEX workforce management systems. The performance suite data import service shall port the WFM schedule to the work schedule table

Preview Reports

Auto Scheduler provides preview reports for tuning schedules; reports provided include:

- Performance Suite Database Members
- Candidate Members
- Members to Monitor
- Successful Member Schedules
- Unsuccessful Member Schedules
- Periods in Member Database

Member and Category Selection

Members can be selected by level and category. Member selection by category is supported for TCS schedules only.

Scheduling

Random schedules and schedules for specific days may be distributed. Scheduling will be possible for the dates and time intervals stored in the work schedule table.

Evaluation Process

The evaluation process is divided into two subsystems. An evaluation plan is created and the evaluation is performed based on that evaluation plan.

The Evaluation Plan

There are four primary pieces of information used to plan an evaluation:

- An evaluation is planned for a particular member of the system. (required)
- The evaluation plan must be completed on or by a given date. (required)
- If screen or voice recordings are required, a schedule of when that member is available to be recorded must be provided. (optional)
- A guideline on the performance areas against which a member is to be evaluated may be provided. (optional)

If recordings are required for a particular plan, then a schedule will be compiled giving the system the information needed to create those recordings [/// to do: add info about CP and the Media Player...].

The optional guidelines provide a feature that allows a user to plan an evaluation based on a pre-determined set of performances areas. The performance areas are assigned a description and a keyword. The keyword is used to enable two or more performance areas to be considered of like types. This is provided so that, if two users performing an evaluation are required to evaluate based on a particular type of area, they may customize the area for their particular needs. A performance area may consist of productivity guidelines, quality guidelines, or both.

On the quality side of an evaluation, one or more questions may be grouped within a performance area. These questions contain attributes beyond the actual text of the

question. Each question contains a short description of the question to enhance the ability to identify a question. They also include an indicator for setting the answer type and possible values for the answer.

The productivity guidelines use evaluation expressions to process other evaluation data. Evaluation expressions are formulas which may be applied to data collected by the system. An evaluation expression is typically a mathematical equation applied to a series of fields in the database.

Evaluation Guideline

The Evaluation Guideline contains Performance Areas. A Performance Area can contain Evaluation Expressions and/or Questions.

If so allowed, Performance Areas may be dynamically selected during the course of an Evaluation. If not, only the currently-defined Performance Areas in this Evaluation Guideline can be used in the Evaluation.

Performance Areas

A Performance Area contains a list of Question titles. By selecting one Question title, the Question text is displayed, along with the scoring control for that Question. The Question may be marked as Not Applicable for the Performance Area. If so allowed, a current score is displayed, showing the current number of points scored out of the possible maximum number of points for the Performance Area, updated as Questions are answered..

A Performance Area can have an Integrity rule, in order to cap or threshold the Performance Area score. A range is defined if an Integrity rule is selected.

A Performance Area can have a Weighting factor associated with it. If all Performance Areas in this Evaluation Guideline have a Weighting factor, a Weighting percentile is calculated, defined as the relative percentage of this Weighting factor in relation to the other Performance Areas :

$$\% = 100 * \text{weight} / \text{Sum}(\text{all P.A. weights})$$

A Performance Area may be marked as not applicable for this particular Evaluation Guideline.

A Performance Area can contain Evaluation (Productivity ?) data. Evaluation data are expressed as part of an Evaluation Expression.

Evaluation Expressions

If Evaluation Data are part of a Performance Area, an Evaluation Expression establishes how to calculate a percentage of a target productivity value that can be used in the Evaluation. Evaluation data are made available through the Data Provider component.

An Evaluation Expression editor allows the user to apply the Sum, Multiply, Average, Round and Truncate functions, as well as the basic arithmetic operators (+, -, * and /) to Target values from Productivity criteria to build an Evaluation Expression. Weight values

can be applied to parts of the Evaluation Expression. As the Evaluation Expression is built, a Calculated target can be calculated and displayed.

The Target values are manually entered or imported data from the selected fields of the Productivity criteria.

Questions

A Question contains text and a Scoring control. The Scoring control will display a low and high range, determined by the type of Scoring control. The available Scoring controls are:

- Edit: arbitrary value manually entered
- Horizontal scroll bar: a cursor slides to select a score among a continuous range
- Check box: the score is one of the two offered selections
- Drop-down list: the score is picked up from a discrete list of possible scores

Each scoring control has a Target value. A Target value is one of the possible scores offered by the Scoring control. The best score is indicated to be the lowest or highest possible value.

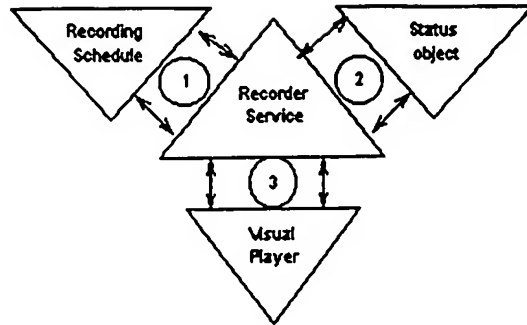
A Question can be Auto-answered. If enabled, the Auto-answer is set to be the minimum or maximum value defined in the Scoring control.

The Evaluation

The evaluation process is best described by its interaction with the other systems. It is the process of users viewing recordings, users answering questions, and the application of evaluation expressions on evaluation data to produce a series of scores. [/// to do: MORE!]

Recorder Service

The primary purpose of the recorder service is to manage the recording and playback of voice and screen data. The recorder service and its components provide an interface between the voice processing hardware and the agent and supervisor clients. The recorder service contains three primary interfaces.



**Recorder Service
Communication Model**

The recorder service receives updates to its recording schedule via a callback mechanism which is initiated whenever an attempt is made to write new recording schedule items into the database. At that time, the request is intercepted by an ISAPI method which executes a stored procedure in the database. This stored procedure, in turn, calls a method in the timer DLL which initializes a system timer set to expire at the time the scheduled recording is desired to begin. When the timer expires, it activates the callback to the CP (Channel Processing) recorder service component, providing the information needed to immediately begin the recording session. This design has the added advantage of permitting Immediately-Scheduled Recording, a (blocking) feature unavailable in previous versions. When a user requests a recording session on demand, a recording schedule event with a trivial offset time (.1 sec) is sent to the database. This triggers the CP component to wake and immediately begin recording.

A COM-based Status object resides on the server to provide various components access to global status information. The Status object receives its input from both the CP recorder service component and data extracted from the database. The CP component communicates with the Status object through the COM Helper component. The CP sends window messages to the COM Helper object which passes the info to the Status object using COM. Additional information about available status data can be found in this document's "Settings" section under the subheading "Status".

The Media Player will be implemented as an ActiveX control embedded in a web page. Upon initialization, the Media Player control will be passed as startup parameters, including the session ID, file location, and other information concerning the recorded screen data file to be viewed. The Media Player control will use this data to formulate an HTTP request to the server which will stream the recorded screen data file back to the player.

The Recorder Service is composed of, and reacts with, many components both on the server and on the supervisor and agent clients. Some of these components are :

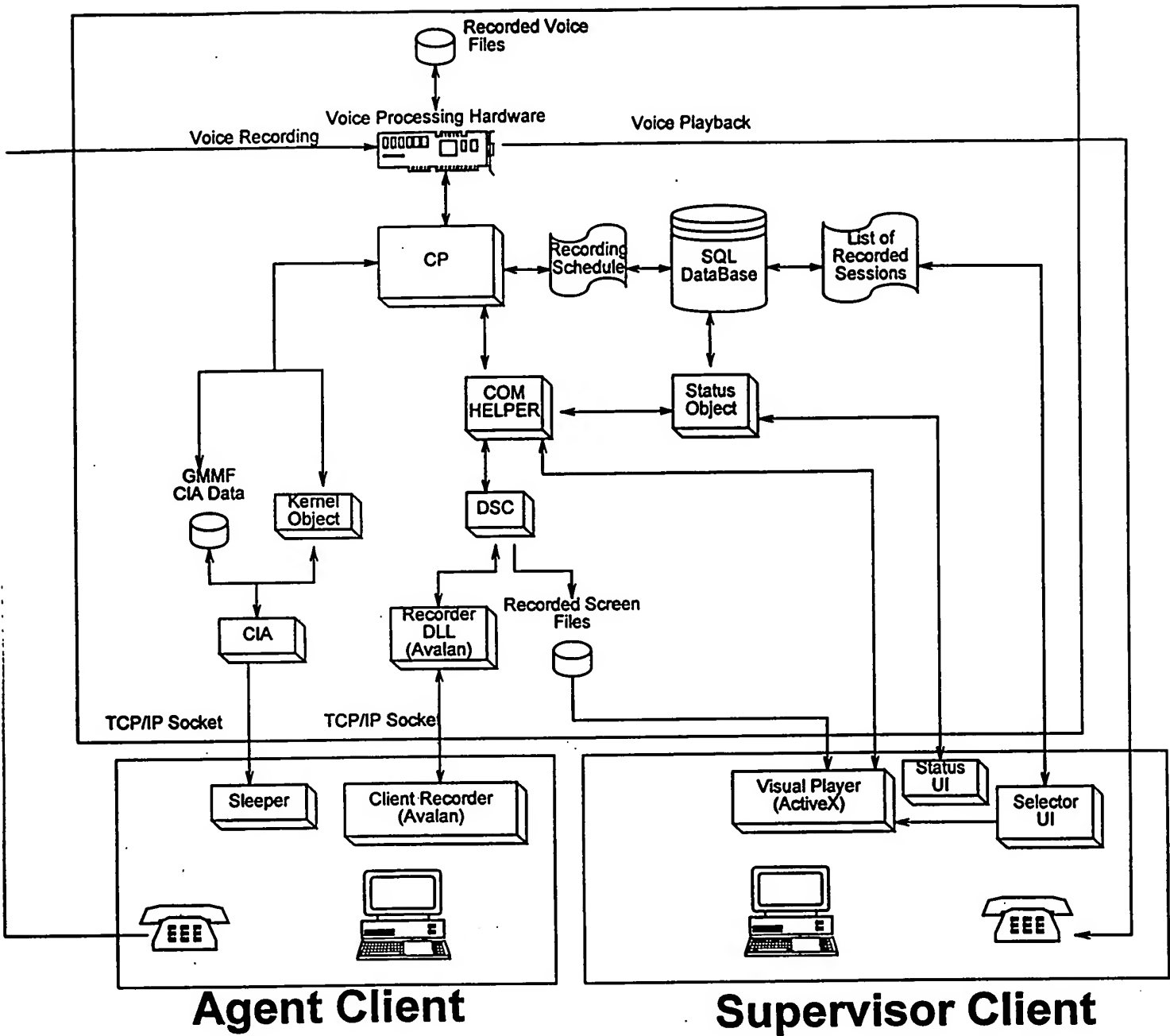
- **CP: Channel Processing.** This component controls and coordinates various other components in the recording and playback of voice files, and initiates desktop recording (if applicable). This component is the primary interface to the voice processing hardware.

COM Helper: This component facilitates communication between various other components, some of which support COM, some of which don't.

- **Status Object:** A COM-based component which collect status information from various sources and provides this data to other components such as UI elements.
- **DSC: Desktop Screen Capture.** This component encapsulates the functionality of capturing and recording the user's interaction with their graphical user interface for later evaluation. This component utilizes a third-party(Avalan) utility composed of a server-side recorder DLL and client-side recorder app which communicate with each other through an established TCP/IP socket.
- **CIA/Sleeper:** This component assists the CP in keeping the playback of voice and screen capture files properly synchronized by providing the CP with information concerning differences in the system times between different clients and servers so that such differences can be compensated for. The CIA and Sleeper communicate with each through an established TCP/IP socket. This component also determines the desktop associated with a particular member.
- **Media Player:** This component utilizes recorded screen files produced by DSC. It will be implemented as an ActiveX component. It will be passed all the information needed to replay a file by the server upon initialization.
- **Voice Processing Hardware:** This component represents the physical add-on hardware card that interfaces the phone system with the server. These cards might be analog or digital based. This hardware directly accesses the server file system, reading and writing recorded voice files.

The Recorder Service components and their interaction are illustrated in the following diagram:

Server



Reporting System

The system view of the reporting system deals mainly with the access of the request for reports and their parameters. The system uses the Crystal Reports web engine that comes with IIS3.0. This reporting engine utilizes the functionality of Crystal Reports 4.5. The functionality is limited to the use of Crystal's precompiled report files (files with the RPT extension). The reports will be designed and compiled into this format. Users will enter various parameters required by these reports and the web engine will deliver the output of the report as a standard HTML file. In the case of graphs and charts, Crystal delivers these as standard jpeg files. Additionally, an export feature for evaluations will be provided (via Crystal) for viewing evaluations using standard Windows applications (i.e. MS Word).

The specialized chart used to plot Productivity versus Quality will require special development to produce the desired output.

Backup, Restore, and Archive

This system provides the ability to backup the entire system. It also includes the functionality to back up the organization and associated evaluations.

Remote Maintenance

Due to the fact the system is built into an internet structure, standard remote access facilities will be used. In particular, Dial-up networking (formerly RAS) will be installed (modem required) on the server to provide basic TCP/IP and Microsoft Network capabilities. This will allow for service from anywhere. Internet protocols may be used, like FTP and HTTP, via standard programs.

Licensing

Licensing for the system consists of the following components:

- AQ (base includes 4 channels)
- PQ
- DSC (base includes 4 channels)
- Base Module (IIS/SQL/etc.)
- AutoScheduler
- PQ Grabber
- Number of Members (sold in packs of 50)
- Number of Simultaneous Logins (sold in packs of 5, maximum of 100)
- Number of DSC Desktops (number of installed and monitorable desktops)
- Channel Increments for AQ (sold in increments of 4, maximum of 24)

Installation and Upgrade

Installation of the web site will require a CD-ROM drive. There are several installation programs that support the installation of a web site. Upgrading from the current AQ and PQ systems will be provided to some extent.

Business Objects

Based on this high-level design, the system would logically implement the business objects defined in this section as the middle tier components. In the actual implementation, some may be further divided into other objects and some may not be implemented at all (in this case, the default business objects provided by the servers might be sufficient).

The actual design of the business object can only be speculated here for the following reasons:

- the programming methodology is following an iterative approach in the design and implementation of the GUI.
- the details of the database design have not been completed at the time of this documents release.

The following sections describe the logical business objects and their suggested interfaces.

Organization Object

The organizational object provides an interface for basic organizational functionality.

Licensing Object

The licensing object would provide interfaces in support of the licensing requirements.

Permissions Object

The class of service table provides the information for the level of access a user is given. This object is an interface into this table giving the client tier access to the various functions.

CP Status Object

This object supports the status information supplied by the recorder service (CP).

Schedule Object

The schedule object has access to the schedule information. It provides a 2-way communication pipe between the recorder service and the schedule information. It

provides interfaces for obtaining schedules and for initiating events based on the schedule information.

Evaluation Object

The evaluation object provides the interfaces for setting up the scheduling of recordings and the manipulation/use of evaluation guidelines.

Evaluation Data Object

This object provides interfaces for the mapping and casting of external data into the database. It also contains interfaces for use in the evaluation expression functionality.

Import Service Object

The importer object schedules and “grabs” external data and places it into a standard import file (i.e. comma delimited).

Configuration Object

This object provides the basic interface into the configuration settings.

Reporting Object

The reporting object receives information from the client tier for selecting reports based on the required filters.

Data View

This section:

- lists the tables in the database along with a brief description of each table.
- shows the tables and their relationships.

Table Descriptions

Users

This table contains the login information needed by users to access functions within the system, including the class of service.

Members

A member is someone on whom functions of the system will be performed. This table allows for the entry of information needed for the functionality. This table also references various notification settings and member location information which is stored in the action table.

Keyword Definition

This table contains the list of keywords used to apply to members and performance areas.

Member Keywords

This is a lookup table that relates members to a particular list of keywords.

Actions

Actions are notification and location identifications applied to members. These fields are duplicated in the member table. The action table provides the means for creating action templates to be applied to an entire group of members. The corresponding fields in the member table allow for the overriding of the template for a particular member.

Hierarchy

The hierarchy table links levels, members, and evaluation plans together in a hierarchical structure.

Level Detail

This table provides the detail of the levels (i.e. level name).

Manage Views

This table contains the level identifiers the users have permission to access for various functions in the system.

Class of Service

The class of service is assigned to a user and defines the user's permission levels for the various functions in the system.

Evaluation Plan

The evaluation plan table contains general information about the planning stage for an evaluation. It is based on a member and a date. It also can contain links to scheduled recordings and an evaluation guideline.

Evaluation Guidelines

The evaluation guidelines table is a collection of performance areas.

Performance Areas

The performance area table is a collection of questions and evaluation expressions.

Performance Area Keywords

This is a lookup table that relates performance areas to a particular list of keywords.

Questions

The question table contains the question descriptions, the actual question text, and the answer type.

Answers

The answer table is a lookup table that relates one or more answers to a question.

Evaluation Data

The evaluation table provides 64 data fields for storage of user defined data elements based on a member. It also includes the data acquisition date and the start/stop (window of relevance) dates.

Evaluation Expressions

The evaluation expression table contains user defined formulas applied to any combination of the 64 fields in the evaluation data.

Schedule

The schedule table contains specific information about scheduled recordings to be used by the recording process. These scheduled tasks may be manually entered or automatically created through AutoScheduler.

Period

Session

Segment

Activity

Channel

Channel Group

Work Schedule

The work schedule table is available to provide the ability to store the member's schedule obtained manually or from an external source.

System Settings

This table contains fields to configure various functions of the system. Included in these fields are settings for reports.

Day of Week

This table contains the user defined day of week properties. This includes the day number definition and a work day type (i.e. is it a work day = yes/no).

Special Days

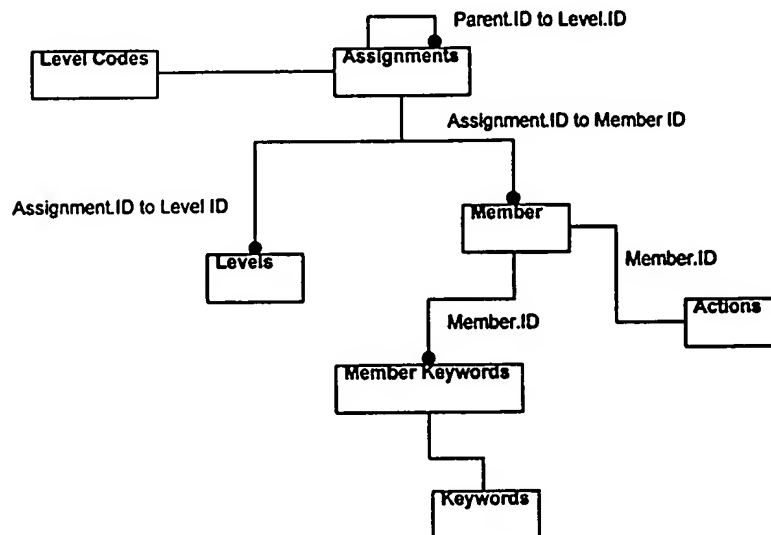
The table contains the list of scheduled holidays and other non-workdays.

Table Relationships

There are four primary functions that comprise the majority of the table relationships. They deal with the organization, the evaluation guidelines, the recording schedule, and user access. The following sections describe these table relationships.

Organization

The organization consists of a hierarchical structure in which levels are created. Within each level, another level or member may reside. The assignment table is a table that represents this hierarchy with links to the details of the node represented. The level codes allow users to assign an attribute to a level, thus creating the ability to group levels into like types (i.e. cost centers).

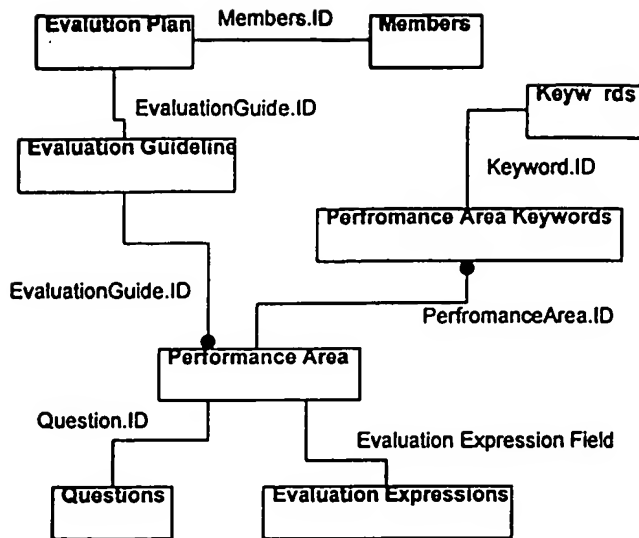


Evaluation Plan

The evaluation plan consists of two main table relationships: guideline relationships and recording schedule relationships.

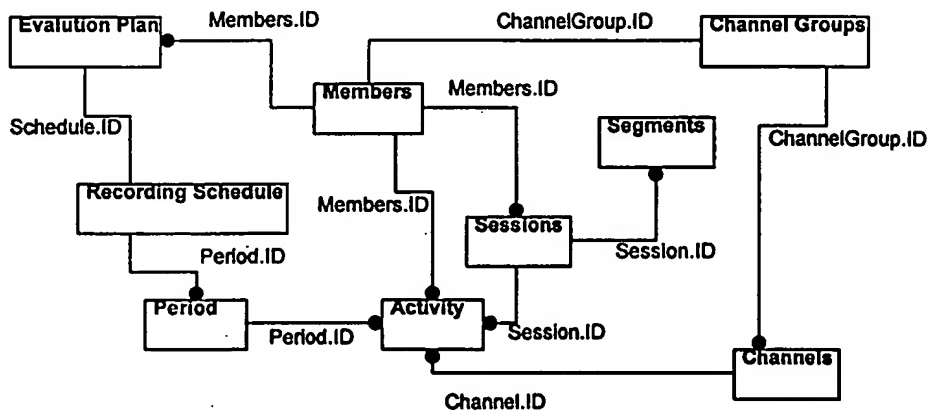
Guidelines

An evaluation plan may contain exactly one predefined guideline to be used by the evaluator to guide the evaluation process. The key to a guideline is the capacity to contain many performance areas, enabling an evaluation to be customized. Keywords may be associated with a performance area, creating the ability to relate performance areas created by different users as similar types.



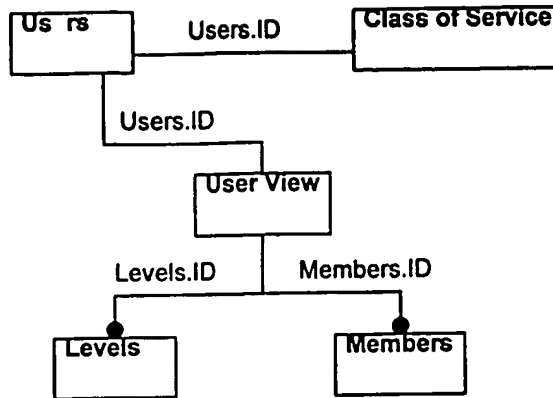
Recording Schedule

The recording schedule is the mechanism for storing recording tasks created either manually or via AutoScheduler.



User Relationships

Users are those persons who perform functions within the system. Because these functions require access to restricted areas in the system, each user will be assigned a class of service specific to their required access needs. In addition to the class of service, a structure for assigning views to the system will be implemented. This allows a user's class of service to be in effect on one or more levels or members.



Reports, Graphs, and Charts

This section describes the reports, graphs, and charts used by the system.

Reporting System

A user can create many detail and summary reports by selecting various categories of information. Detail reports provide information for members and the elements of each member. Summary reports do not show elements for members, but rather provide the average score(s) for a particular member or level. For instance, if a user wants to see the average score for a certain member, the user would generate a summary report. If the user wants to view how that member's score was determined, the user would create a detail report. The following illustrate the types of detail and summary information available:

Detail

- members
- users
- evaluation questions
- productivity values
- time line

Summary

- members
- users
- evaluation questions
- productivity values
- comparison level
- time line

Report Selections

The user has the ability to specify the following criteria for selecting report information.

- dates (exact or relative)
- times
- hierarchy
- keywords
- questions
- users
- average

Report Overviews

The following is an overview of the types of reports available with Teknekron Performance Suite:

Detail Reports

- **Productivity and Quality** - presents actual scores, maximum scores, and percentage of maximum for both Quality and Productivity by evaluation date for each member with group averages for all hierarchical levels
- **Quality Evaluation** - presents notes, actual scores, maximum score, and percentage of maximum for each question of an evaluation with subtotals by performance areas, evaluation, member, and any additional hierarchical levels
- **Productivity Analysis** - presents actual scores, maximum score, and percentage of maximum for each equation of productivity data with subtotals by member and any additional hierarchical levels
- **Quality Question** - presents actual scores for each question along with the total actual score, maximum score, and percentage of maximum for each performance area with subtotals by evaluation, member, and any additional hierarchical levels; a list of questions follows each evaluation
- **Productivity Element** - presents actual data along with the equation-produced actual score, maximum score, and percentage of maximum for each element of productivity data with subtotals by member and any additional hierarchical levels
- **Detail Evaluation** - presents evaluation date, time, and status of all evaluations for a member subtotaled by status, date, member, and evaluator

Summary Reports

- **Productivity and Quality** - presents average scores for both Quality and Productivity for each member with group averages for all hierarchical levels
- **Quality Evaluation** - presents average scores by performance areas, evaluation, member, and any additional hierarchical levels
- **Productivity Analysis** - presents average scores for each equation of productivity data with subtotals by member and any additional hierarchical levels
- **Quality Question** - presents the total score for each question and the percentage of maximum scores for each performance area
- **Productivity and Quality Comparison** - presents average scores, maximum scores, and percentage of maximum for both Quality and Productivity by member with comparison averages for a chosen hierarchical level

Charts

- **Productivity and Quality** - presents current scatter point chart plotting productivity and quality scores for date, member, users, and hierarchical levels
- **Productivity** - presents productivity data plotted against time for members, users, and other hierarchical levels
- **Quality** - presents quality data plotted against time for members, users, questions, and other hierarchical levels

System Settings and Status

This section describes:

- the configuration properties used by the system components.
- the status information provided to the user interfaces.

System Settings

System settings guide the action and behavior of system components. The settings described here support the data provider, organization, evaluation, recorder service, and reporting function blocks.

Data Provider

Data Connection

Defines the medium for connecting the TPS system to sources outside of TPS.

Logical Connection Name—A unique logical user-defined name for the connection. The user may refer to this name when importing data. For example: Import My Work Schedules from My WFM System

Connection type—A serial, FTP or file copy connection medium for porting data.

Serial—An RS-232 serial communication connection

Server name—A unique logical user-defined name that describes the server providing the physical connection to TPS.

Port—A unique channel number describing the communication port number (Com1 – Com4)

Baud rate—300, 1200, 2400, 4800, 9600, 19200, 28800

Flow control—HW, SW

Parity—None, Odd or Even

Data bits—7 or 8

Stop bits—0, 1 or 2

FTP

Source directory—Network location and path

Filename—Name of file to transfer

File Copy

Source directory—Network location and path

Filename—Name of file to copy

External Data Source

Data type—A system identifier for identifying the data type.

Data binding—A system identifier for identifying the data destination. Destinations include:

- Work Schedule
- Evaluation data
- Agent definition

Data recognition—A settings group for the data that specifically deals with how the data content is recognized as valid data.

Data cast—A user specification of how the data source is mapped to the data destination.

Data source fields—An exhaustive list of the data fields found in the data source.

Data destination fields—An exhaustive list of data fields found in the destination.

Data unions—The setting that identifies the union of a data source field and destination field.

Record matching—The setting to match records using member names or member ID's.

Name compare order—The settings that indicate the name order in the data source.

Work schedule—data sources include:

- TCS Export
- TCS
- IEX
- Cybernetics
- Pipkins

Evaluation Data—sources include:

- | | |
|---|--|
| • Northern Telecom, Data Stream Report | • Rockwell Spectrum, Agent Performance Summary |
| • AT&T CMS, Daily Group Attendance | • AT&T CMS, Daily Group Summary |
| • Comma delimited file | • Column position report |
| • Rockwell ERS, Staff Performance Primary | • Rolm Agent Performance Distribution Report |
| • Rolm Agent Performance Summary Report | • Infoswitch Series III, Daily Agent Performance |
| • Agent definition sources include | • Infoswitch Series III |

Evaluation Process

Evaluation

Hide score option – Class of service item that disables the presentation of the score during the course of conducting the review.

Evaluation Guideline

Access permission – A password-protected guideline access requirement for users who wish to change the guideline.

Static guideline – Y/N setting for enabling the guideline composition to be altered during the course of conducting the evaluation. This setting controls the scope of the performance areas that must be considered.

Recording Schedule

Maximum number of voice recordings – A limit on the number of voice recordings included in any one plan.

Maximum number of desktop screen recordings – A limit on the number of desktop screen recordings included in any one plan.

Organization

Organization tiers - Default limit on the number of tiers in the organization.

Tier levels - Default limit on the number of levels per tier.

Members per level - Default limit on the number of members per level.

Multiple memberships – Y/N setting for enabling membership in more than one level.

Maximum membership – A licensed limit on the maximum number of members defined in the system.

Silent monitor - Y/N - By default silently monitor everyone in this level

Notify - Y/N - By default notify everyone in the level.

Recorder Service

- Recorder
- Server addresses
- Voice driver configuration
- Channel activity
- Maximum annotation time
- Maximum ID igits

- Maximum record time
- Maximum silence
- System debugs
- Player
- Play hold seconds-hold time is announced during playback
- Verbose playback
- Skip Ahead seconds- Maximum skip-ahead seconds
- Elapsed seconds since start announcement-Y/N
- Screen recordings
- Voice recordings
- Number of days to keep records of voice files
- Scheduling
- Can schedule up to x days in advance (default 1 year)

Reporting

Company name - User-defined company name in the report header

User-defined text area - A text area within report footer.

Utilities

Logging

System components write messages to logging processes that record the messages

- Maximum file size
- Number of days to retain
- Enable
- Log filename
- Detail level
 - 0-errors, only severe errors
 - 2-warnings
 - 3-info
 - 4-infohi, verbose information
 - 5-debuglo, low volume debug, minimal debug

- 6-debug, medium volume debug
- 7-debug, verbose debug such as hex dumps

Logging areas

- **Monitor** - monitor, includes notify
- **Playback** - playback
- **MSG** - messages between CP and AQ
- **FTA** - find the agent
- **AMC** - aspect agent monitor card, includes serial COM phone object
- **File** - Voice file Object
- **B-Channel** process object

Licensing Modules - The licensing process must permit enabling any of the following modules:

- **AQ**
- **PQ**
- **DSC**
- **Auto Scheduler**
- **PQ Grabber**
- **Membership** - membership is licensing in packs of 50
- **Simultaneous Logins** - licensing in packs of 5, limit 100
- **DSC desktops** - ???
- **Channels**
 - **Voice** - sold in increments of 4, max. 24
 - **Desktop DSC** - sold in increments of 4, max. 24

Host Switches

Type - the type of the host switch.

Monitor - The functional access code for monitoring

Notify-Monitor - The functional access code for notifying

Agent tracking feature - The type of system connected for tracking agents. Tracking is supported for NT Meridian MAX, NT Meridian MAX Version 7, NT Meridian C2, AT&T CMS.

Enable - Y/N - Disable agent tracking system wide

Status Information

Call Processing Operating Mode

Running – CP is operating normally

Stopped - CP is stopped because user stopped CP

Starting - CP is coming on-line

Stopping – AQ is in the process of deactivating all voice processing. Any sessions in progress complete.

Session Complete - All voice processing is inactive. AQ can be successfully shut down without damaging any voice files.

Voice ports

Channel activity

Channel - Configured port number

Port - switch port identification number

Type - Channel used for playback, recording or both

Status - Includes the following

Idle - no activity

Monitoring - listening to an agent and waiting for a session to occur so it can be recorded.

Recording - recording an agent's session.

Playback - being used to play back a recorded session.

- Logging on
- Annotating
- Playback paused
- Playing voice file
- Recording agent name
- Playback menu

Notify - notifying a member that monitoring will occur.

Annotate - used to add annotations to a recording.

Inactive - channel disabled by user.

Dialing - Dialing member to notify

Connecting - establishing a monitoring connection

Going On-line - channel is coming on-line

Off-line - Channel is off-line because system took it off-line

ID - shows the ID of the user or member connected to the channel.

Name - shows the name of the user or member connected to the channel.

Recording Sessions

- **Sessions scheduled** - number of sessions scheduled for the day.
- **Sessions completed** - number of scheduled sessions completed.
- **Sessions remaining** - sessions remaining for the day.
- **Sessions completed** - percentage of sessions completed for the day.
- **Screen ports**

Drive Information

Current disk space available (hh:mm)

Predicted disk space available for day's end (hh:mm)

Total disk space (hh:mm)

Implementation Considerations

The system is based on a three-tier approach that separates the GUI from the data. This is done by implementing a series of middle-tier business objects that provide a standard data access approach as well as the application of business rules. This approach enhances portability and maintainability. This section describes:

- the programming components used in the three tiers.
- the user interface programming considerations.
- the programming strategy applied to accomplish this design.

Programming Components

Since the system is web-based, the system will take advantage of several key features. First of all the system will be running on an NT 4.0 (server or workstation) running Internet Information Server 3.0 (IIS 3.0). SQL Server 6.5 will be used in conjunction with IIS 3.0 using the Internet Connection license. These three technologies give us three major advantages that affect how the system is built:

- it allows the access of the database via one client license
- it does not require a client to install any ODBC drivers
- it does not require the setting up of any DSN on the client

The client will be Internet Explorer 3.1 or higher (IE 3.1+). The programming methods used are chosen to take advantage of the underlying networking inherent in the above mentioned system configuration as well as the features of IE 3.1 +.

ActiveX controls

The major components of the GUI will be ActiveX controls. The use of ActiveX controls provides us with a richer GUI and better scripting control within HTML. Most of the components will come from the freely distributable controls that come with Visual C++ 5.0 (VC++ 5.0). There will be an occasion that a control will need to be developed. Also, additional controls may need to be purchased.

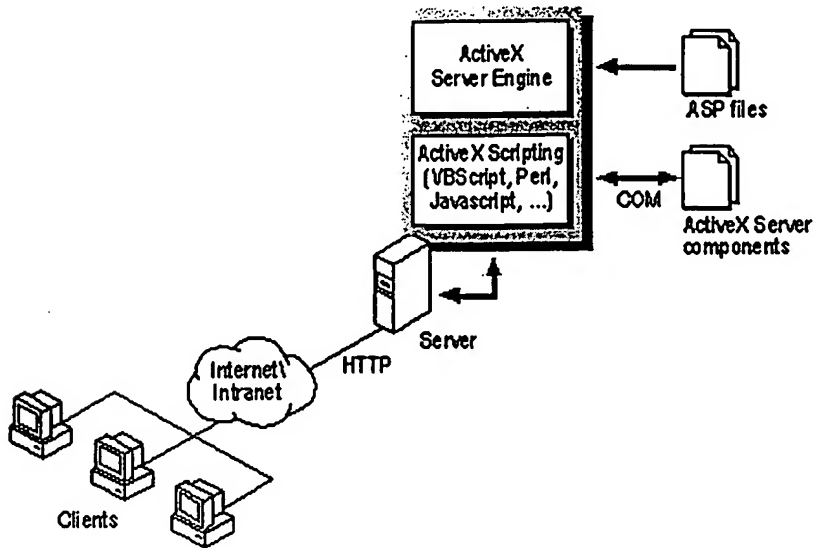
ASP pages

ASP is an extension on a file that IIS 3.0 recognizes as an "Active Server Page". Some general terms used to refer to different aspects of ASP page are server-side scripting and server-side components. The server-side components are specialized ActiveX components (formerly called OLE automation components) that may be executed prior to the web page being delivered to the client. Server-side scripting provides as means of accessing the interfaces of the server-side components. This technology gives us the ability to:

- Create dynamic HTML
- Execute functions on the server before the page gets displayed

- Permit database access prior to the page being downloaded

Dynamic HTML is a powerful feature that allows the presentation of a web page to be dependent on changing system settings and database by using the server-side scripting features. Executing functions on a server via the web centralizes processing and allows for better service and support. The following figure gives a view architecturally of how the ASP pages fit into the Intranet scheme:



ADC

When describing Advanced Data Connector applications, it is useful to employ the concept of tiering. A tier represents a separate process space or machine boundary. For example, think of a basic client/server application as two-tiered, in which one part of the application resides on the local computer (for example, the presentation logic, or “client tier”), and the other part resides on the server computer (for example, the processing logic, or “application server tier”).

Advanced Data Connector applications function in two types of tiered environments: three tier, which is the most common one for distributed Web applications, and two tier, which is typical for small office and some intranet scenarios.

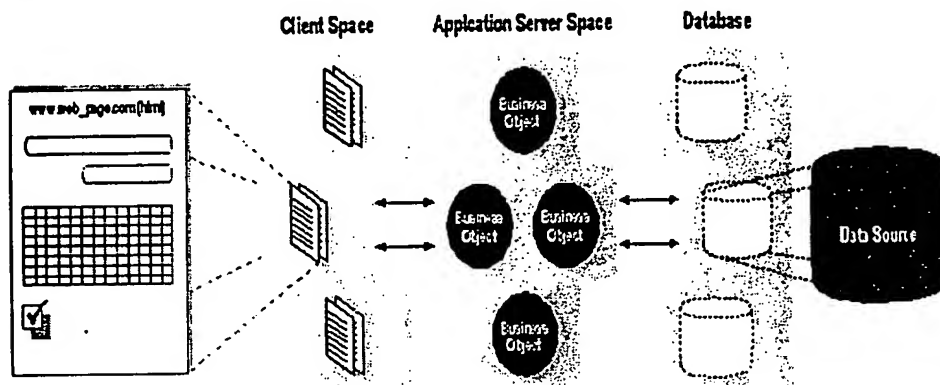
Use the following definitions to help understand the Advanced Data Connector architecture across multiple logical tiers:

- The client tier represents a local computer where browser software displays a Web page.
- The middle tier, or application-server tier, represents a Web server where the System DSN is defined, and instances of the application’s business objects are created.
- The data source tier represents a server computer running a DBMS, such as a SQL Server, Access, Oracle, or Informix database.

The Advanced Data Connector (ADC) uses Open Database Connectivity (ODBC), the standardized architecture that supports building data-aware applications without targeting

a specific DBMS. In addition to ODBC, Advanced Data Connector is integrated with the other technologies in the system, including IIS 3.0 and SQL Server. It is based on a distributed client/server technology that works over HTTP, HTTPS (HTTP over Secure Sockets layer), and DCOM application protocols. A key feature of ADC is a client-side caching mechanism that minimizes connections to SQL Server. As a result, performance will be enhanced. The performance improvements are especially noticeable when accessing data across an Intranet.

Architecturally, ADC is a logical development of component-based client/server applications. ADC's model includes an application space that resides on a LAN, and consists of the logical or business components of an application. As shown in the following figure, the application server space can consist of one or more business objects.



Business objects are discrete pieces of code that implement the business functions, rules, and processes of an organization. By using a model that partitions the application logic into groups of discrete components, ADC supports an efficient model for distributed Web applications. This model:

- encapsulates business components, making them easier to change.
- focuses client-side programming on application front ends and simple validation routines.
- decreases the load from the database server.
- allows the building of generic, reusable business components that are independent of a particular front end.

The ADC architecture has the capability to connect to multiple DBMSs (with ODBC). Separating that component from the application frees application developers from having to code the DBMS connections, and makes it possible to build applications that use distributed data from multiple DBMSs. For more detailed information refer to Microsoft's Advanced Data Connector Documentation.

Browser object model

The Internet Explorer scripting object model is a structure for embedding VBScript commands or programs inside HTML documents. The object model is also accessible from any "pluggable" scripting language that integrates with the ActiveX scripting

framework. The object model describes component interfaces of Internet Explorer that have been exposed to programming languages; in this case, the interface is provided to a scripting language with the HTML document. There are three ways to attach and invoke scripts in HTML:

- use the SCRIPT tag.
- use those attributes of HTML elements that support scripts.
- use a custom URL type.

Please refer Microsoft's Internet Explorer Scripting Object Model for more detail.

User Interface programming considerations

The user interface is built using HTML 3.0 standards. The system makes extensive use of the IE 3.1 object tag that supports ActiveX controls.

The system utilizes a standard set of active controls that comprise the bulk of the GUI. The following is a list of these controls:

- button
- list box
- tree
- radio button
- explorer view
- progress bar
- HTML layout
- label
- combo box
- list view
- check box
- slider
- edit box
- HTML design-time controls

Controls are inserted into an HTML layout control to enhance the ability to design the pages and add scripting. The scripting language of choice is VBScript.

Development Process

Languages

There are three languages used in the development of the system:

- HTML
- VBScript™
- C++

HTML is the language used for the basic screen layout and style. It will be used within the context of ASP pages. ActiveX controls embedded in HTML tags. VBScript is used

to access properties and functionality of the controls. It is also the means of programming the flow and interaction of the web pages. C++ is used to develop the middle tier business objects.

Strategy

Because the system is designed in three tiers, a development strategy is defined here. Development follows an iterative process in which the GUI and the database details remain in constant change. Consequently, the middle-tier business objects are difficult to design and implement. However, the degree of difficulty is reduced through each iteration. There are several reasons for guiding the development process through these difficult beginnings:

- Database connections can be managed more efficiently.
- The GUI or other processes do not care about the source of the data.
- The GUI or other processes do not care if the query is made via a SQL statement or a stored procedure. The business object can choose the most efficient method of access.
- The GUI or other processes do not need to know details about tables.
- Changes made to the tables can be focused in the business objects. One change goes to all GUI components and processes.
- Problems in data access are confined to the business objects.
- These business objects can be accessed through any programming language.

The following proposed guidelines are defined to aid in the development process:

1. The GUI will be designed and implemented without data access.
2. Temporary data access will be attached to the GUI either via the server-side database object (ADO) or the client-side default ADC business object. A development SQL Server database will be provided for developers to add tables to support their data needs.
3. The developer will design the data access interface using IDL.
4. The business objects will be implemented based on the interface design.

This process would be greatly enhanced if the detail database design is implemented before step 2. While it is not necessary for the GUI to use the names and types of the data elements as they appear in the database it would relieve some of the burden on the business object development. Having the GUI address the data elements by name would simplify the integration and remove the need for aliasing the columns in the queries. Also, knowing the data types would reduce the need for the business objects of having to perform data conversion.

Issues

This section contains a list of frequently asked questions pertaining to how the system works and issues in the design and development process.

FAQ (Frequently Asked Questions)

- How will the recording schedule be communicated to CP?
- Do we need to import the NT logins to the TPS database?
- Can the Media Player use something other than drive mappings to play the recordings?
- How will screen recordings be viewed and questions answered at the same time?
- What if the customer only buys the voice recording piece (i.e. like the current AQ)
- How will the status from CP get to the user?

Issues

- Development approach to the changing Database.
- Approach to the query definition design.
- How do we allow for rapid GUI development as the business objects lag?
- Upgrading from current AQ and PQ systems will be incomplete and in some cases impossible. How do we best perform the upgrade procedure?
- How do we handle the IP addressing scheme? What if a customer does not have any IP licenses?

Sign-off

Name/Title

Date

Name/Title

Date

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Product Description

P&Q
REVIEW®
A TEKNEKRON PERFORMANCE
SUITE™ PRODUCT


#161-0801-104



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Overview

To be successful in today's competitive marketplace, call centers must meet two key objectives—acceptable productivity standards and high-quality customer service. Measuring ONLY productivity statistics or ONLY customer service skills leaves a gaping hole in any call center performance picture. You cannot be effective with agents who speed calls along without resolving customer issues. And you cannot have agents who take one call, though they handle that one call perfectly.

To measure your call center's performance, you must merge productivity statistics with customer service skill measurements. This takes more time than most call center managers can spare. As a leader in call center management technology, Teknekron has the answer to this problem with P&Q Review®.

P&Q Review®

Developed in [REDACTED], P&Q Review was the first product to allow call centers to create online agent evaluations that measure productivity data combined with quality criteria. With our most recent enhancements to the product, P&Q Review is the only enterprise-wide system that combines productivity and quality data using the latest Web browser and relational database technology.

P&Q Review enables you to import productivity data from various data sources, such as an ACD/PBX, sales databases, human resource databases, or other customer-specific applications. You choose the report fields to match against your productivity criteria, and the data collection engine then collects the data and performs any calculations necessary to create your productivity measure.

P&Q Review collects qualitative data to evaluate agent effectiveness and service skills. Online evaluation forms that you create using P&Q Review provide the basis for the data collection. Each agent's performance is evaluated using these customer-defined evaluation forms.

By using P&Q Review, you can accurately evaluate your agents' strengths and weaknesses in a fair and consistent manner against a set of target goals. Your agents also have the opportunity to use the data to track their own progress and see how their performance compares to set objectives. P&Q Review puts everyone in the call center on the same track to improve team performance. It provides the balance you need to reach the highest levels of service and efficiency.



■ Performance Suite™

P&Q Review can be used as a stand-alone product or more successfully as part of our exclusive Performance Suite™, a complete line of performance management solutions designed specifically for call centers. The following products within our Performance Suite enhance the effectiveness of P&Q Review.

- AutoQuality®, Teknekron's turnkey monitoring system, automatically schedules, records, and stores monitoring sessions during specific intervals for playback and evaluation. As a result, AutoQuality is an efficient method for collecting qualitative data. Supervisors can easily meet monitoring goals and spend more time counseling and coaching agents.
- Like AutoQuality, Desktop Screen Capture™ is designed to help you manage your service observation process and meet your monitoring goals. Desktop Screen Capture records all of the agent's PC activities during a transaction. The system features coordinated recording and playback with AutoQuality voice sessions and continuous capture of desktop activities. This product offers yet another method for collecting qualitative data.
- With On Demand™, agents can initiate call recording at will. This capability is ideal for verification purposes, such as confirming a sale. On Demand is also a tool for agent training and development. Agents can record their best calls to be included in evaluations or problem calls to review during coaching. The system features easy file archiving and retrieval.

Figure 1 below highlights sources of data and the other Performance Suite products used by P&Q Review to complete agent evaluations.

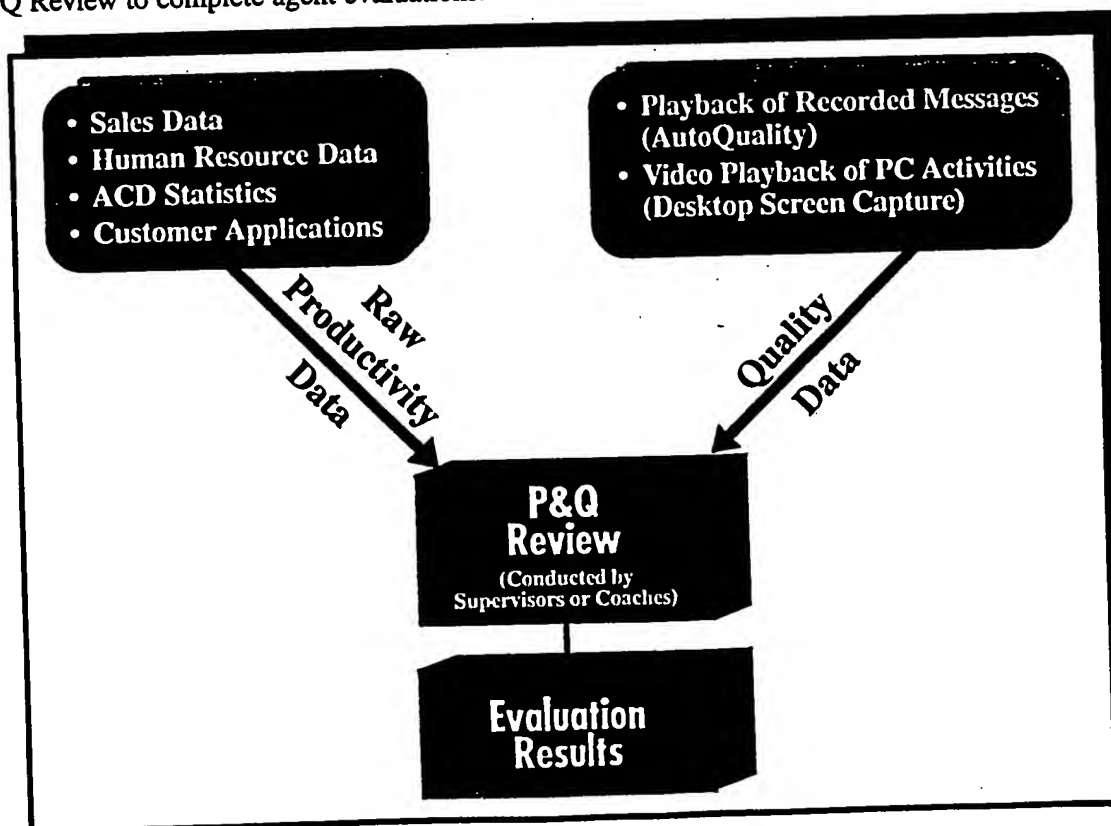


Figure 1. P&Q Review



■ Conclusion

The purpose of this document is to discuss the P&Q Review product from four different perspectives: features, benefits, operations, and system requirements.

By understanding the features and benefits, you will see how P&Q Review provides the foundation for a world-class quality program to help you achieve excellent customer service and efficiency.

The description of P&Q Review operations shows how easily you can customize the program to deliver performance information for your call center. The system requirements section will establish the equipment and software needed to operate P&Q Review.

In this document, the following terms are used:

- **Class of Service**—access rights for each supervisor
- **Data Elements**—foundational information required to develop questions and expressions. Examples include: hours, days worked, and available time.
- **Expressions**—mathematical formulas used to determine productivity requirements. They are applied to the data elements.
- **Evaluations**—online forms used to assess agent performance
- **Filters**—parameters used to identify information to be charted or reported
- **Guidelines**—groups of performance areas that constitute the online evaluation form
- **Keywords**—descriptive terms used to develop the major categories for your call center setup. Examples of keywords include: college graduate, second shift, and full-time.
- **Members**—employees whose primary responsibility is to handle phone calls from customers. Members are also referred to as agents.
- **Performance Areas**—groups of questions and expressions used to develop the online evaluation form
- **Users**—employees whose primary responsibility is to supervise agents. Users are often referred to as supervisors.





Features

The flexible structure of P&Q Review enables users to build performance programs that meet their goals. We know each call center is different. One company's priority may be to track the number of calls per hour and the number of sales made. Another company's priority may be to determine how many days per month an agent is at work.

Figure 2 below illustrates that you have the flexibility to define the input parameters for gathering productivity and quality data. Keywords, organizations, questions, and weighted equations or expressions are a few of the parameters you define before evaluations are completed.

Once you have defined the input parameters for evaluations, you have the flexibility to define your output—reports and charts. Filters are used to identify the information to be reported. These filters are identified in Figure 2. You can use the standard reports and charts provided by P&Q Review or custom define them. The open architecture of P&Q Review allows you to use a wide variety of commercially available report writers to produce custom-defined reports and charts that meet your needs.

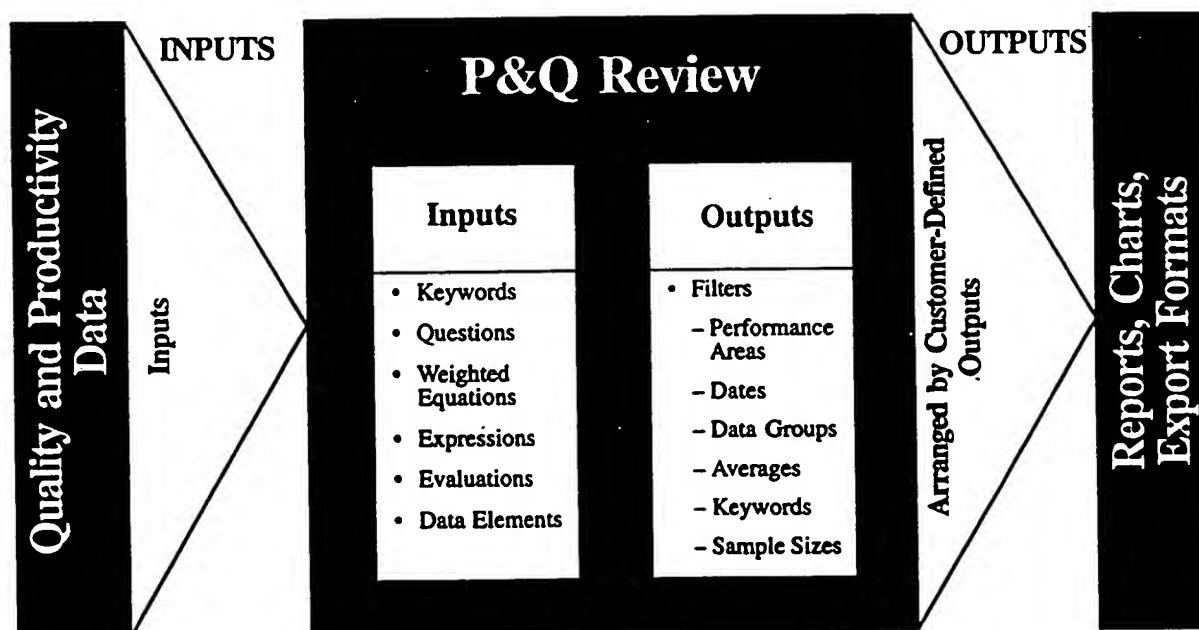


Figure 2. Inputs and Outputs



Each P&Q Review feature is greatly enhanced by the flexibility of the product. The key features can be grouped into two major categories: human resource-related features and technology-related features. Human resource-related features allow you to address the performance of your call center staff. Technology-related features allow you to more efficiently and effectively access required information.

Human Resource-Related Features	Technology-Related Features
<ul style="list-style-type: none"> • Consistent evaluation criteria • Variable measurements • Flexible scoring • Incentives • Improvement areas • Enhanced training • Agent self-development • Fairness and documentation • Calibration 	<ul style="list-style-type: none"> • Flexible charting • Online evaluation forms • Incorporation of ACD/PBX and business data • Web-based/Internet/Intranet access • Open architecture

Following is a description of each key human resource-related feature and technology-related feature.

■ Human Resource-Related Features

Maintaining outstanding customer service requires you to have the most qualified agents handling customer requests. The following features of P&Q Review give you the tools to produce this highly qualified call center staff.

- **Consistent evaluation criteria**—All agents in a group can be evaluated against the same set of criteria—criteria that you established. P&Q Review ensures that everyone who performs the same job is evaluated fairly and objectively.
- **Variable measurements**—Since you have the ability to define the parameters for the performance evaluation, you can evaluate agents according to variable criteria as appropriate. For example, you may want to measure new agents differently from experienced ones. These variable measures can be established by selecting questions or performance areas based on the different levels of expertise. In addition, improvement guidelines and performance plans can be created by agent, agent type, call type, service type, or any other criteria you want to evaluate.
- **Flexible scoring**—Various scoring methods and tools are customer-defined. Supervisors can use report data to track performance and compare it to target goals and group averages in each area. You can determine the guidelines by which you want to review your agents. As a result, you have greater flexibility in measuring the services you provide your customers.
- **Incentives**—You can use P&Q Review as a fair basis for offering employee incentives, rewarding top performers, and enhancing productivity, morale, and satisfaction. The report writing capabilities of P&Q Review allow you to organize and report the information you need.



- **Improvement areas**—Because P&Q Review allows you to focus on each agent's individual performance, you can quickly assess development needs. For example, if you wanted to review an agent's ability to sell a particular product, you could simply produce a report that tells you how well the agent is performing. Required competencies can be evaluated using P&Q Review. If an agent has problems performing an identified competency, you can address it quickly and plan accordingly. Figure 3 shows an example report that identifies areas of improvement.

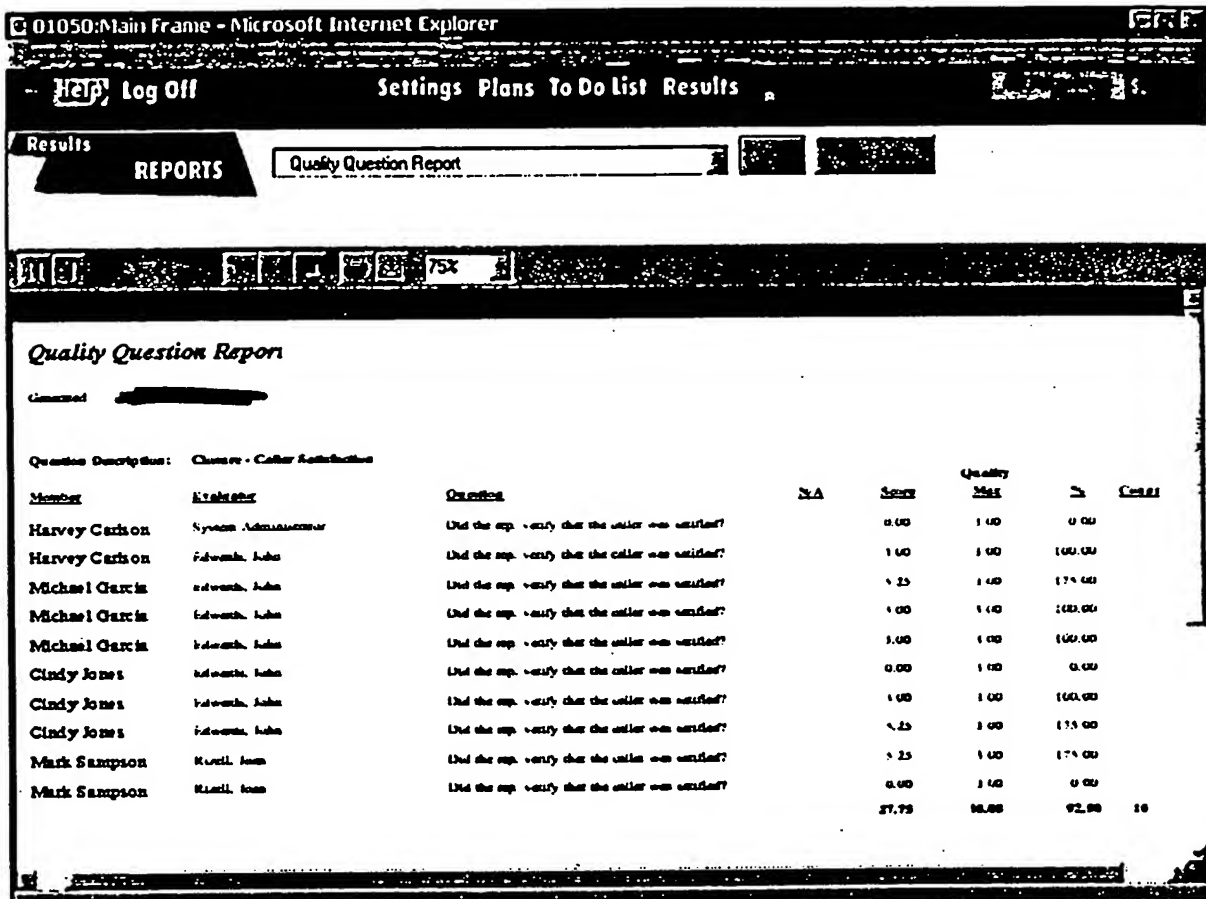


Figure 3. Quality Question Report

- **Enhanced training**—Once you have identified competencies that need improvement, you can target training programs to address those areas. P&Q Review is also a valuable tool for evaluating instructor effectiveness. By establishing parameters for agent performance after a specific trainer's classes or sessions, you can determine how well the trainer taught the information.



- **Agent self-development**—Agents can use report data to track their own progress and to see how their performance compares to target goals and group averages in each area. Agents are empowered to actively participate in their progress because they have access to information that will assist them in being successful.
- **Fairness and documentation**—Detailed reports validate the fairness and consistency of your evaluation process. By using statistical equations that can be built within P&Q Review, you can quickly determine if your evaluations are reliable and valid.
- **Calibration**—You can use the system to ensure that your supervisors are consistent and unbiased. You can evaluate the supervisors by having two or more evaluate the same agent sessions. Then run a report to compare the results. Being able to compare evaluations completed by your supervisors is critical to the success of your call center's performance. You must have the checks and balances of this feature in place to ensure that each of your supervisors is grading consistently. Figure 4 illustrates how multiple supervisors evaluated the performance of an agent.

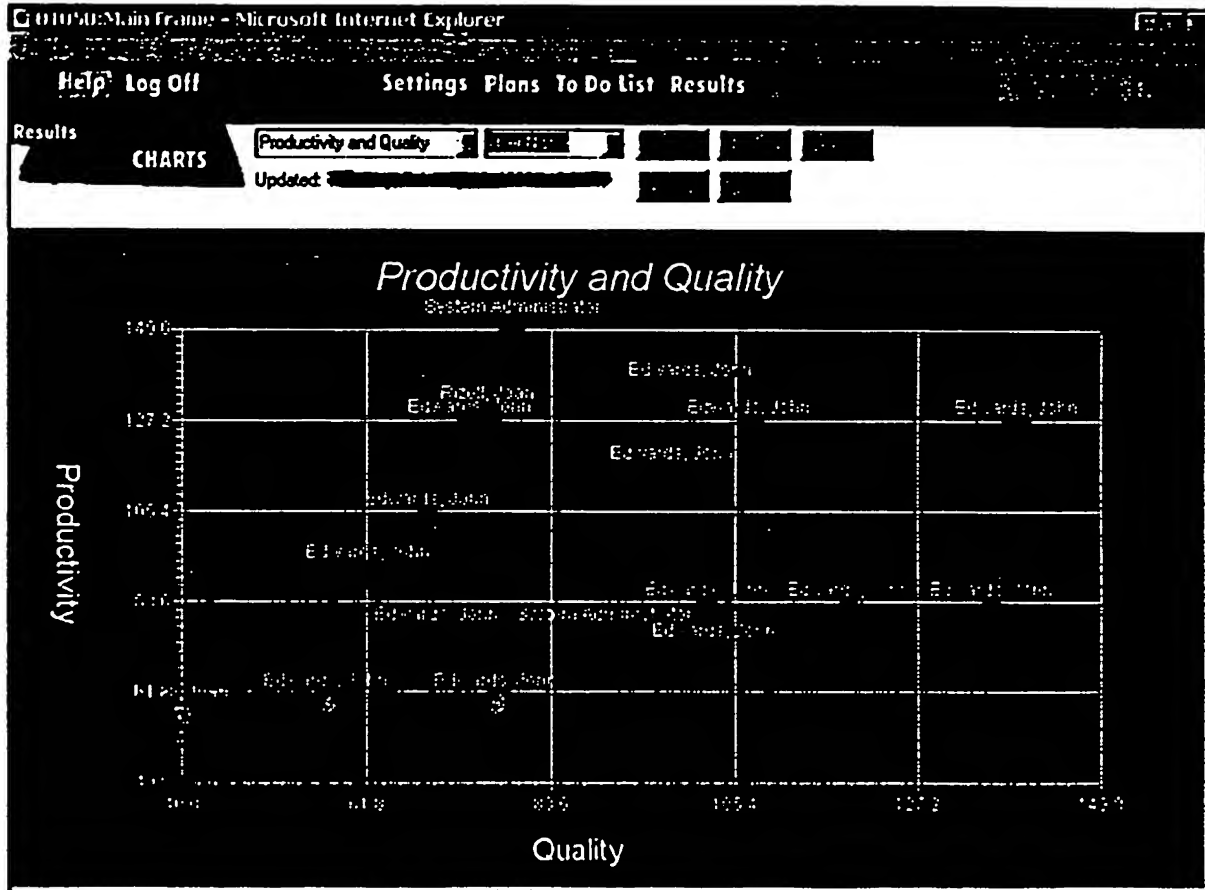


Figure 4. Supervisor Evaluation Chart



Technology-Related Features

The success of P&Q Review lies not only in its human resource-related features but also in how the information used by P&Q Review is captured and delivered. By taking advantage of leading-edge technology, P&Q Review efficiently addresses call center demands. Following are specific technology-related features that set P&Q Review apart in the marketplace.

- **Flexible charting**—The flexibility you have in defining the inputs and outputs allows you to chart information important to your organization. As a result, the P&Q Review analysis chart provides a balanced performance picture that integrates the productivity and quality review scores. Using scatter charts, you can easily analyze performance trends, identify star performers, and pinpoint areas for improvement. Figure 5 shows an example chart depicting the performance of agents.

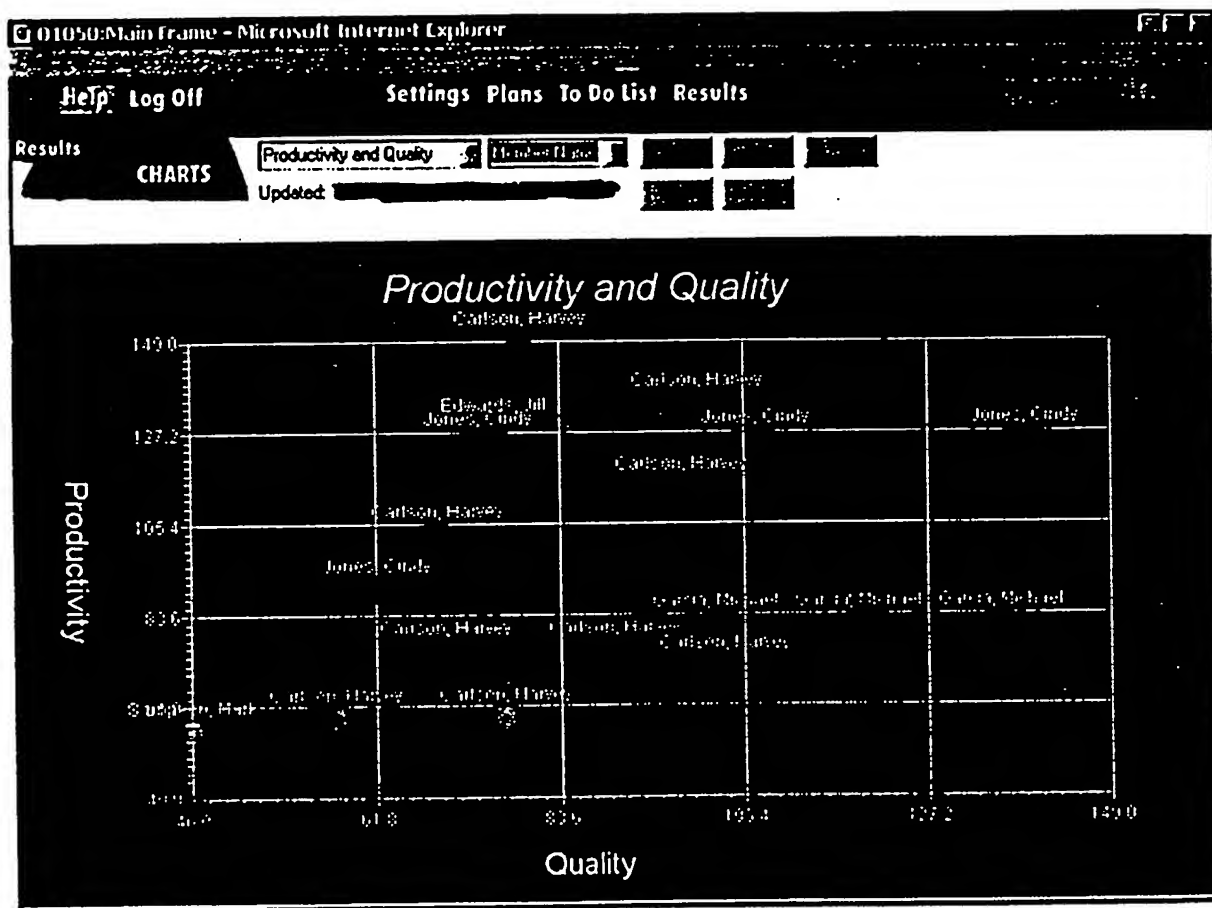


Figure 5. Productivity and Quality Chart

- **Online evaluation forms**—P&Q Review simplifies the evaluation process with a flexible structure of multi-tiered questions, answers, and scoring methods. Evaluation forms can be structured to handle various classes and types of calls for different stages of agent development and areas of competency. These forms are completed online while agents or supervisors listen and view recorded voice and data sessions. Figure 6 shows an example evaluation form.



01050: Main Frame - Microsoft Internet Explorer

Help Log Off Settings Plans To Do List Results

To Do List

EVALUATIONS

- (76%) Carlson, Har
- (100%) Greeting
- (100%) Product
- (104%) Technique
- (0%) Closure

Performance Area N/A

60%	Knowledge - Policies	1
11%	Knowledge Product	5

Did the rep. explain the product accurately? ☐

Question Notes

Figure 6. Evaluation Form

- **Incorporation of ACD/PBX and business data**—This feature enables you to import productivity data automatically from various data sources including the following:
 - ◆ ACD/PBX—includes data such as call times and hold times
 - ◆ Human resource database—includes data such as the number of sick days, vacation time remaining, and number of days tardy
 - ◆ Sales database—includes data regarding the number of items or revenue sold by a particular agent
 - ◆ Customer-specific applications—includes applications that are unique to your organization

You choose the report fields you want to match against your productivity criteria and then the data collection engine collects the data and performs any calculations necessary to create your productivity measure.

- **Web-based/Internet/Intranet access**—This feature allows you to take advantage of the Internet/Intranet to access P&Q Review remotely to complete evaluations. Agents can also use the Internet/Intranet to track their progress. This Web browser capability also gives you the flexibility to use P&Q Review throughout your enterprise.
- **Open architecture**—P&Q Review was designed with an open architecture. By providing database access through SQL, ODBC, and relational databases, you have unlimited flexibility in reporting. You can input data from multiple sources. You can also use a wide variety of commercially available report writers to extract information needed to produce your reports.





Benefits

P&Q Review allows you to turn performance data into useful information so you can develop your staff into an outstanding and highly professional team. Following are the benefits of P&Q Review.

- **Increased revenue**—P&Q Review is a selling feature for you as you market your call center services to potential customers. Your customers will see that you are committed to providing the highest quality of service available and are investing in the latest technology for agent development.
- **Cost effectiveness**—Your supervisors are more efficient because P&Q Review gives them the tools to quickly and consistently evaluate agents. Because the supervisors spend less time evaluating agents, they can be performing other tasks, such as training new employees to perform at a higher level of efficiency in a shorter amount of time. P&Q Review eliminates wasteful and inefficient manual paper reviews. Everything needed for the review process is online.
- **Empowerment of agents**—Agents can track their own progress. Supervisors can reward outstanding performance and agents who need additional assistance can enhance their own performance.
- **Increased productivity of agents**—P&Q Review allows you to closely track productivity. As a result you can quickly identify areas of agent performance that need improvement. These areas can then be addressed accordingly to increase productivity.
- **Increased levels of customer service**—Through the P&Q Review standardized evaluation form, you can capture qualitative data that can be used to improve how customer issues are handled.
- **Consistent results**—Results are graphically displayed and easy to understand, which allows you to compare and contrast data. Trends can be readily highlighted and analyzed.
- **Enterprise-wide reporting**—Using P&Q Review, you can review the performance of multiple call centers and roll up reports to the corporate level.





Operations

P&Q Review follows a structured process for evaluating performance and producing results. This process allows you to custom-define the information you need. Figure 7 illustrates the four key steps to organize, input, and report information.

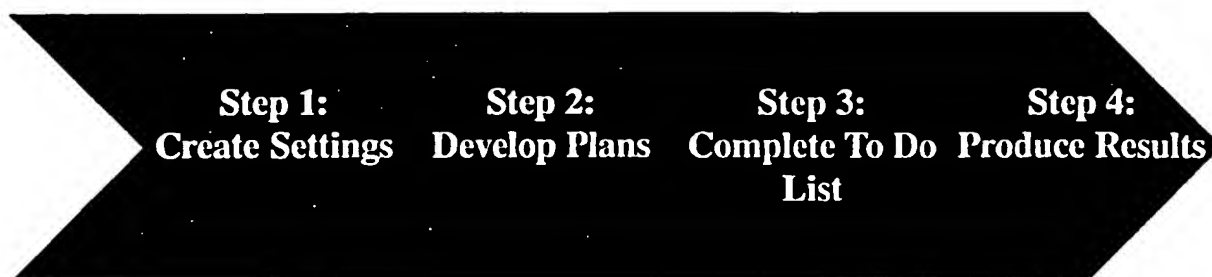


Figure 7. Four-Step Process

Step 1: Create Settings

Before evaluations can be conducted, you must organize P&Q Review to meet your specific needs. The first step is to create the settings that define how you will organize information. You must determine keywords that will be used to identify data for tracking and reporting. You will also need to decide who has access to specific information and then determine the organizational levels to be followed.



- Build Keywords
- Determine Class of Service
- Establish Organization
- Add Users
- Add Members

Member and user names will also be added and deleted during this step. The following sub-steps are completed during Step 1: Create Settings.

Note: P&Q Review uses the term "member" for agents and "user" for supervisors. These terms are used in this section.



Step 1a: Build Keywords

Keywords are established first because they are basic to the way P&Q Review will be used for your call center. You determine the words that are critical for the evaluation process. As a result, keywords provide a tremendous amount of power in the operation of P&Q Review.

Through the *Keywords* window, you will enter words such as *member tenure*, *full-time*, *part-time*, and *high school graduate*. These words will be used to organize and report information as needed. Figure 8 shows an example of a completed *Keywords* window.

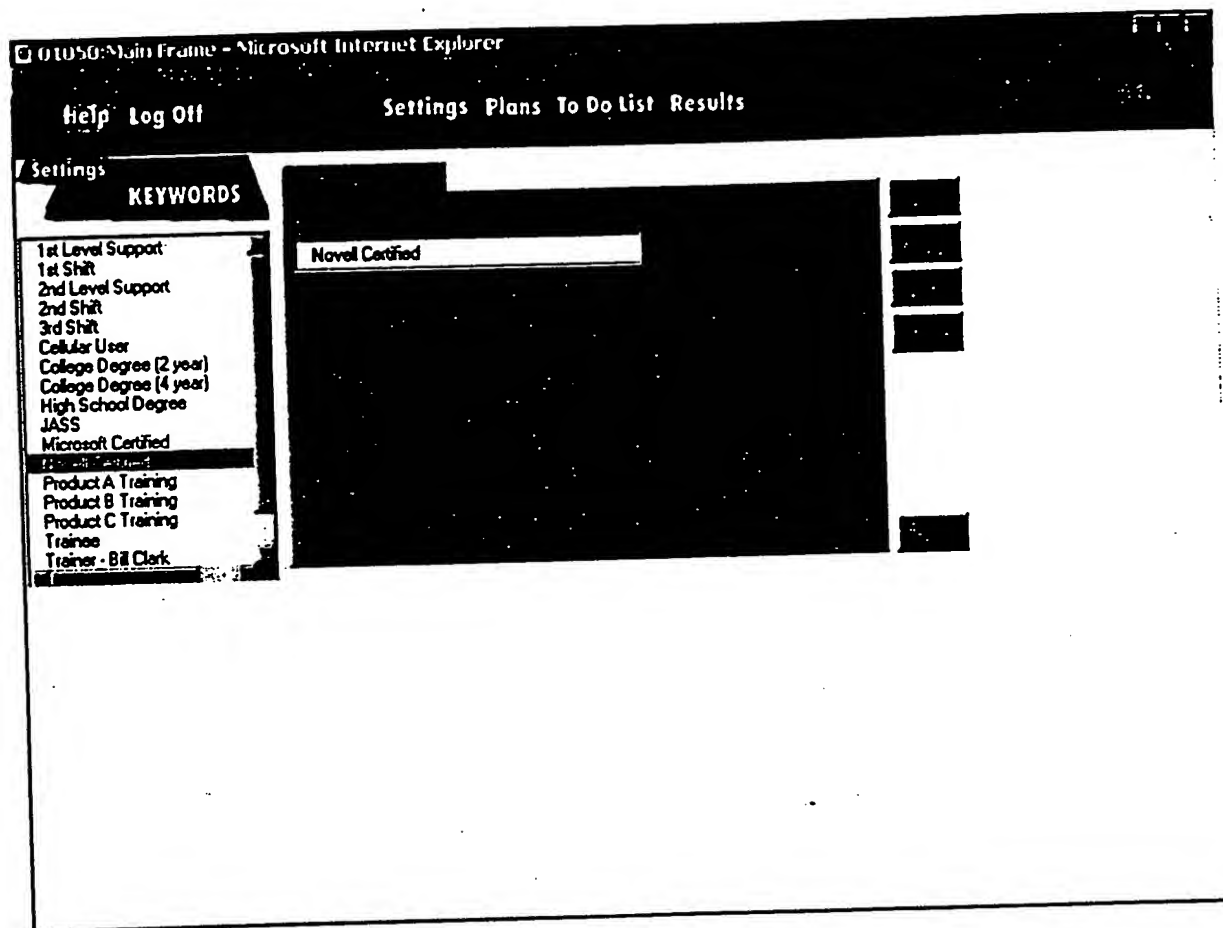


Figure 8. Keywords Window



Step 1b: Determine Class of Service

You will use the *Class of Service* window to determine access rights for each user. For example, you may want members to have read-only access to information regarding their performance and users to have read-write access to members within their organizations. Figure 9 shows an example of a completed *Class of Service* window.

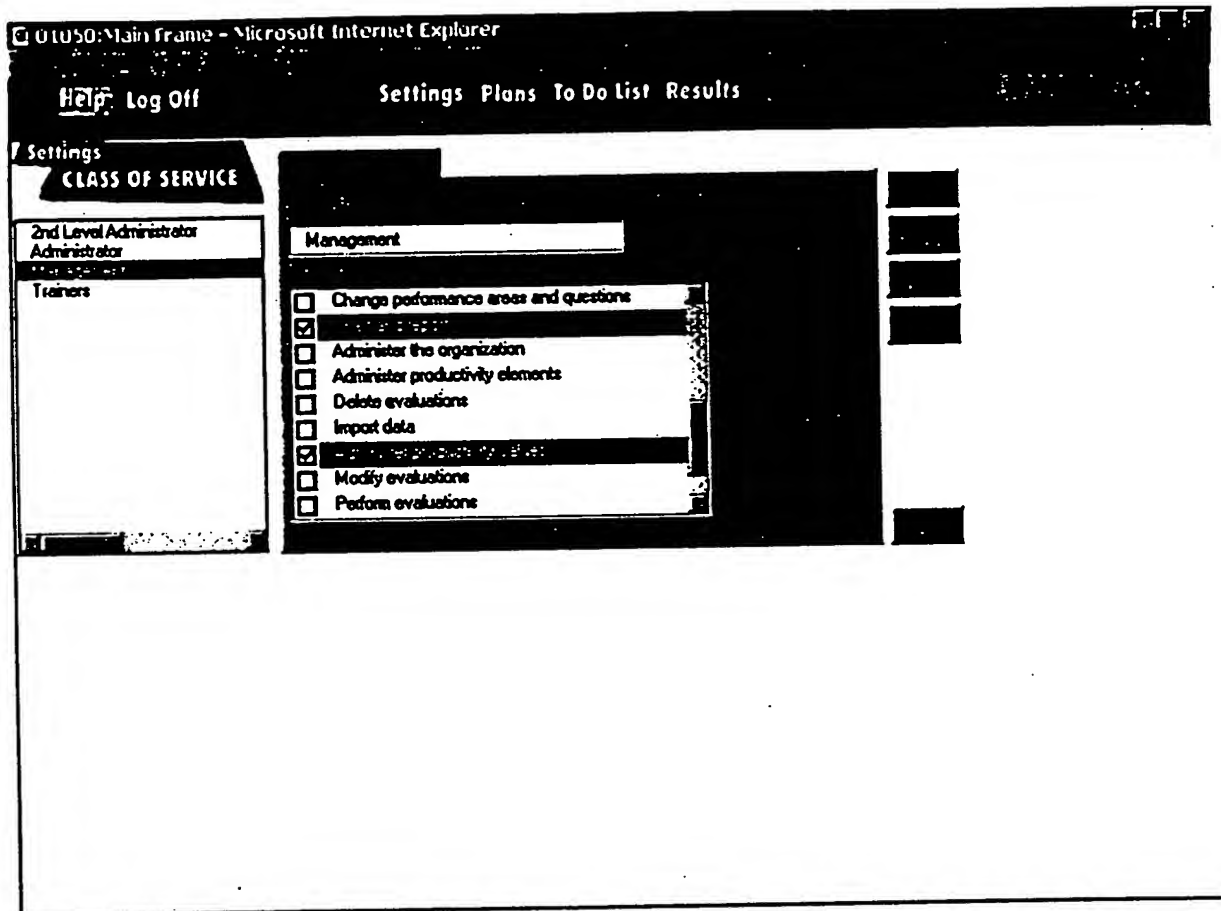


Figure 9. Class of Service Window

Step 1c: Establish Organization

You will use the *Organization* windows to identify the organizational structure of the call center and establish the organizational hierarchy within P&Q Review. Here, you also add members to the system and assign passwords. Figures 10 and 11 show the *Level Definition* window and *Member Definition* window. The *Level Definition* window allows you to establish the organizational hierarchy. The *Member Definition* window allows you to add and delete members.

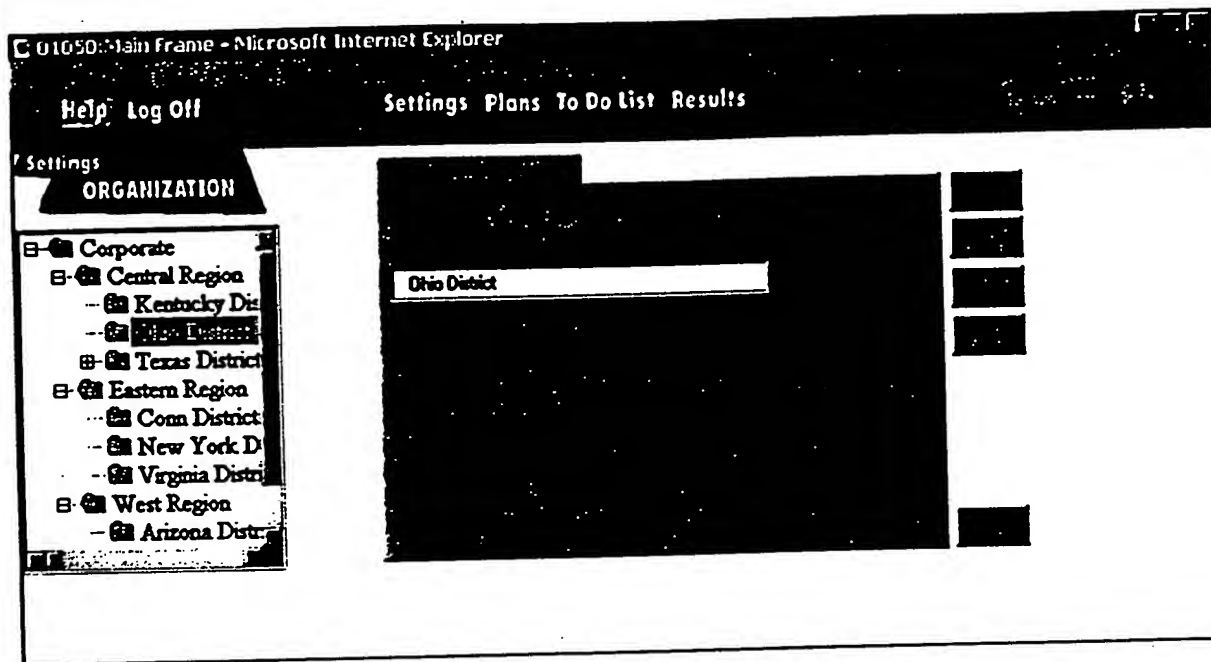


Figure 10. Level Definition Window

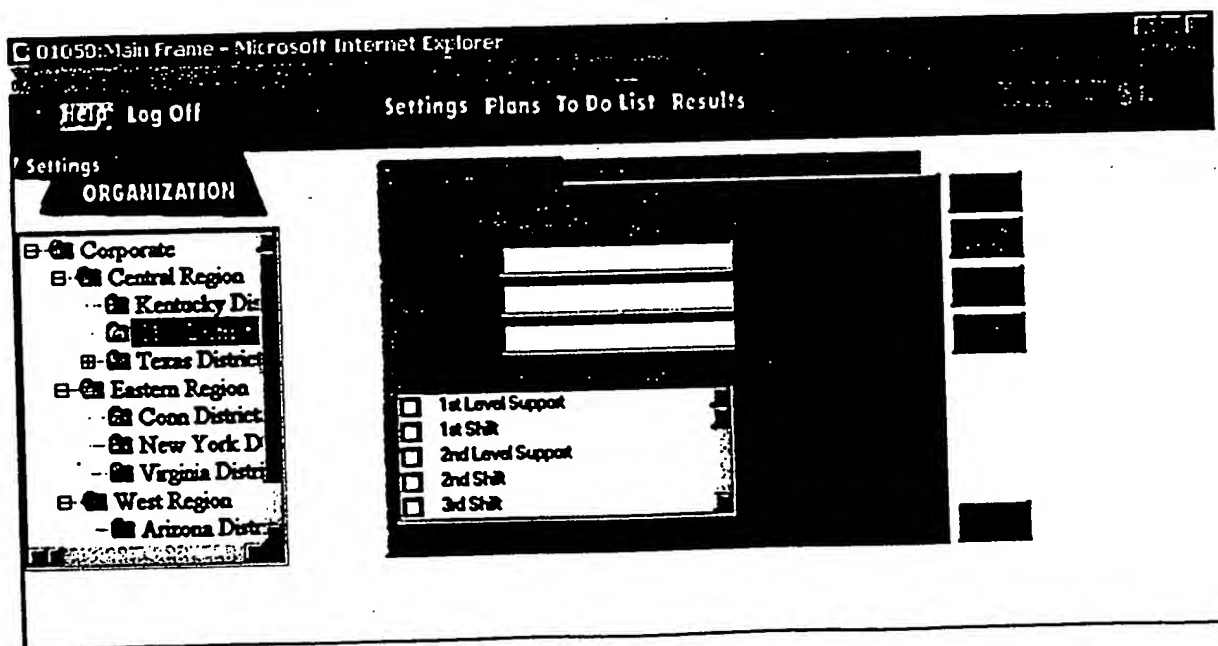


Figure 11. Member Definition Window



Step 1d: Add Users

You will access the following window to add users. Since users will be evaluating members, they must have access to member information. As a result, user privileges must be determined by accessing the *Class of Service* template. Figures 12 and 13 show the window for determining user privileges and views.

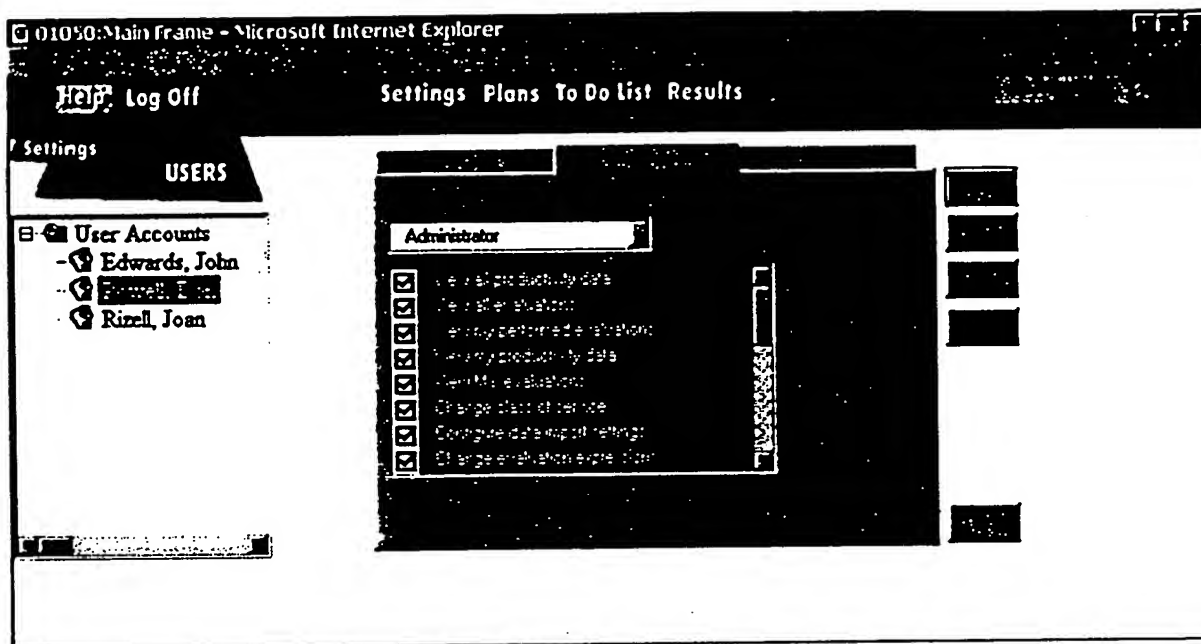


Figure 12. User (Privileges) Window

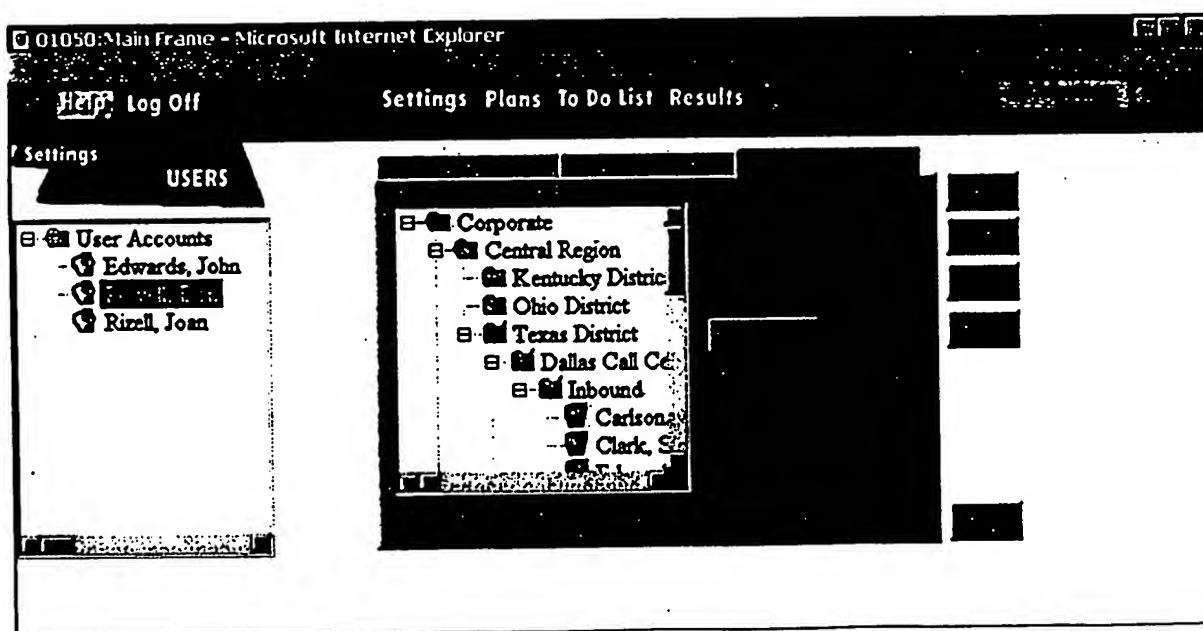


Figure 13. User (Views) Window



Step 2: Develop Plans

During this step, you will determine the specific information used to evaluate your members. Begin with all of the questions you want to ask. These questions are grouped into performance areas that include similar competencies. These performance areas are then grouped into guidelines. The guidelines become the basis of the evaluation.

Step 2: Develop Plans

- Develop Questions
- Identify Data Elements
- Build Expressions
- Identify Performance Areas
- Identify Guidelines

Questions can be used in more than one performance area. Likewise, a performance area may be used in more than one guideline. Figure 14 illustrates this approach.

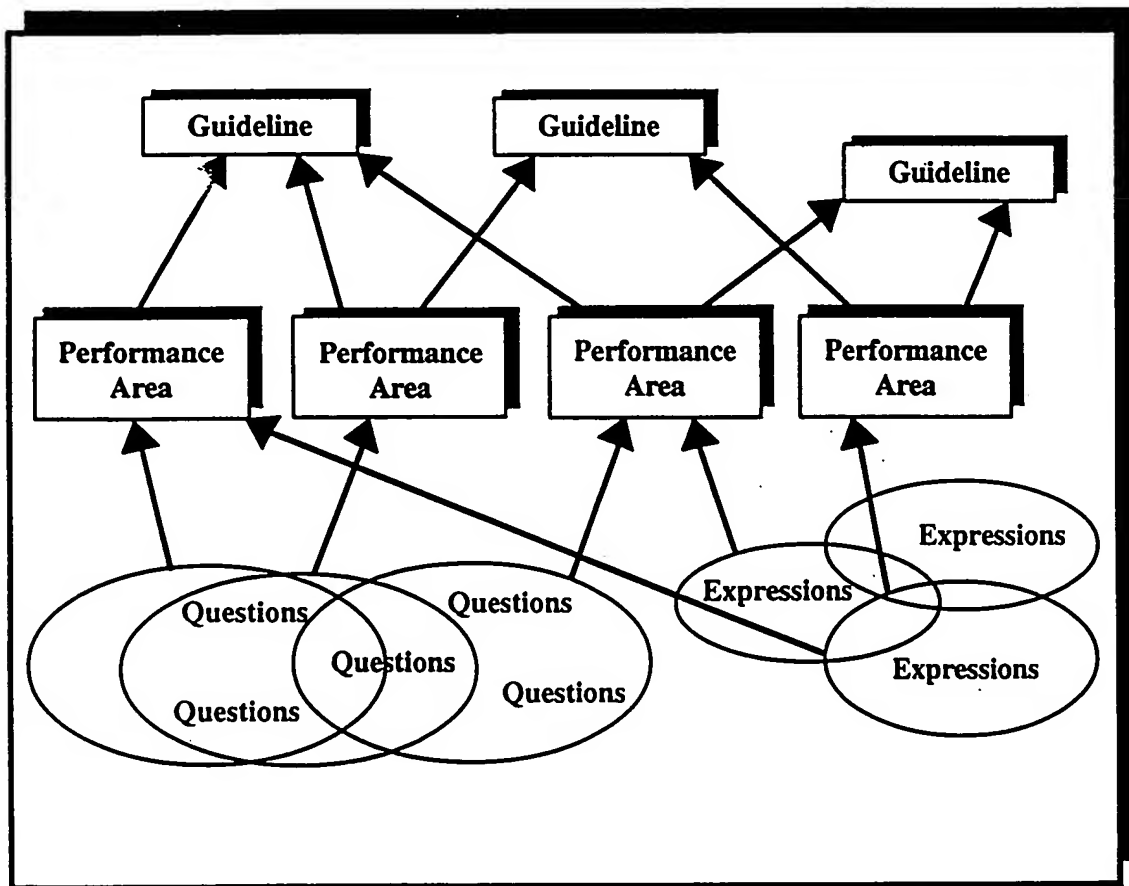


Figure 14. Development of Evaluations



Step 2a: Develop Questions

During this step, you will enter all of the questions to be included in the evaluation. Then you will determine the type of answer you expect. Following are the answer types:

- Yes/No—asks for either a yes or no response
- Drop-down list—asks for one answer from a list of possible answers
- Horizontal scroll bar—asks for an answer on a continuum or an overall rating
- Edit box—asks for a numeric answer. This box allows negative or positive numbers or decimals to be used.
- Radio buttons—asks for one answer from a list of possible answers. All options appear at one time.

Figures 15 through 20 show sample *Questions* windows for each of the answer types. Two samples are presented for the Radio buttons answer type.

The screenshot shows a web application interface titled "01050: Main Frame - Microsoft Internet Explorer". The interface has a top navigation bar with links: "Help", "Log Off", "Settings", "Plans", "To Do List", and "Results". Below this is a "Plans" section with a "QUESTIONS" tab. On the left, there is a list of categories: "Closure - Caller Satisfaction", "Coached yet", "Greeting - Intro", "Greeting - Std", "Knowledge - Policies", "Knowledge Product A", "Knowledge Product B", "Tech - Callers name", "Tech - Composure", "Tech - Listening Skills", and "Texas Product Knowledge". The main area displays a question titled "Tech - Attitude" with the text "Did the rep. maintain a positive attitude throughout the call?". To the right of the question is a "Yes/No" dropdown menu currently set to "1". Below the question, there are two radio buttons labeled "Yes" and "No". To the right of the radio buttons are three radio buttons labeled "Use best value", "Use earlier value", and "Use right value".

Figure 15. Yes/No Answer Type



01050:Main Frame - Microsoft Internet Explorer

Log Off Settings Plans To Do List Results

Plans

QUESTIONS

- Closure - Caller Satisfaction
- Coached yet
- Greeting - Intro
- Greeting - Std
- Knowledge - Policies
- Knowledge Product A
- Knowledge Product B
- Tech - Attitude
- Tech - Callers name
- Tech - Listening Skills
- Texas Product Knowledge

Tech - Composure

Drop-down list

3

Did the rep. maintain composure during adverse conditions?

How well did the member perform the task?

good
poor
fair

Use best value
Use fairer value
Use worst value

Figure 16. Drop-Down List Answer Type

01050:Main Frame - Microsoft Internet Explorer

Log Off Settings Plans To Do List Results

Plans

QUESTIONS

- Closure - Caller Satisfaction
- Coached yet
- Greeting - Intro
- Greeting - Std
- Knowledge - Policies
- Knowledge Product A
- Knowledge Product B
- Tech - Attitude
- Tech - Callers name
- Tech - Composure
- Texas Product Knowledge

Tech - Listening Skills

Horizontal scroll bar

1

Did the rep respond appropriately to what the caller said?

Overall rating?

10 1 2 3 4 5 6 7 8 9 10

Use best value
Use fairer value
Use worst value

Figure 17. Horizontal Scroll Bar Answer Type



01050:Main Frame - Microsoft Internet Explorer

File Edit View Favorites Help

Help Log Off Settings Plans To Do List Results

Plans

QUESTIONS

Closure - Caller Satisfaction
Coached yet
Greeting - Intro
Greeting - Std
Knowledge - Policies
Knowledge Product A
Knowledge Product B
Tech - Attitude
Tech - Callers name
Tech - Composure
Tech - Listening Skills
Texas Product Knowledge

Details

Question
Knowledge Product B

Question Text
Did the rep accurately explain Product B?

Example
Rating (1-50) 42

Answer Settings

Answer Type:
Edit box

Relative Weight: 10

Enable Auto-Answer:
☐ Use best value
☒ Use target value
☐ Use worst value

Next
Save
Undo
Delete
Done

Figure 18. Edit Box Answer Type

01050:Main Frame - Microsoft Internet Explorer

File Edit View Favorites Help

Help Log Off Settings Plans To Do List Results

Plans

QUESTIONS

Closure - Caller Satisfaction
Coached yet
Greeting - Intro
Greeting - Std
Knowledge - Policies
Knowledge Product A
Knowledge Product B
Tech - Attitude
Tech - Callers name
Tech - Composure
Tech - Listening Skills
Texas Product Knowledge

Details

Knowledge - Policies

Did the rep. explain company policy in a positive manner?

How well did the person perform this task?
☐ poor ☐ fair ☒ good

Radio buttons

1

☐ Use best value
☒ Use target value
☐ Use worst value

Next
Save
Undo
Delete
Done

Figure 19. Radio Buttons (Details) Answer Type



Microsoft Internet Explorer - Main Frame

help Log Off Settings Plans To Do List Results

Plans

QUESTIONS

Closure - Caller Satisfaction
Coached yet
Greeting - Intro
Greeting - Std

Knowledge Product A
Knowledge Product B
Tech - Attitude
Tech - Callers name
Tech - Composure
Tech - Listening Skills
Texas Product Knowledge

Good

5

5

Poor	0
Fair	3
Good	5
Great	8

Figure 20. Radio Buttons (Answer Settings) Answer Type



Step 2b: Identify Data Elements

During this step, you will define the raw data to be included, for example the number of calls and the number of hours. These data elements are used in the weighted expressions for productivity data. They may be added automatically using the data collection engine.

Figure 21 shows the *Data Elements* window for entering raw data.

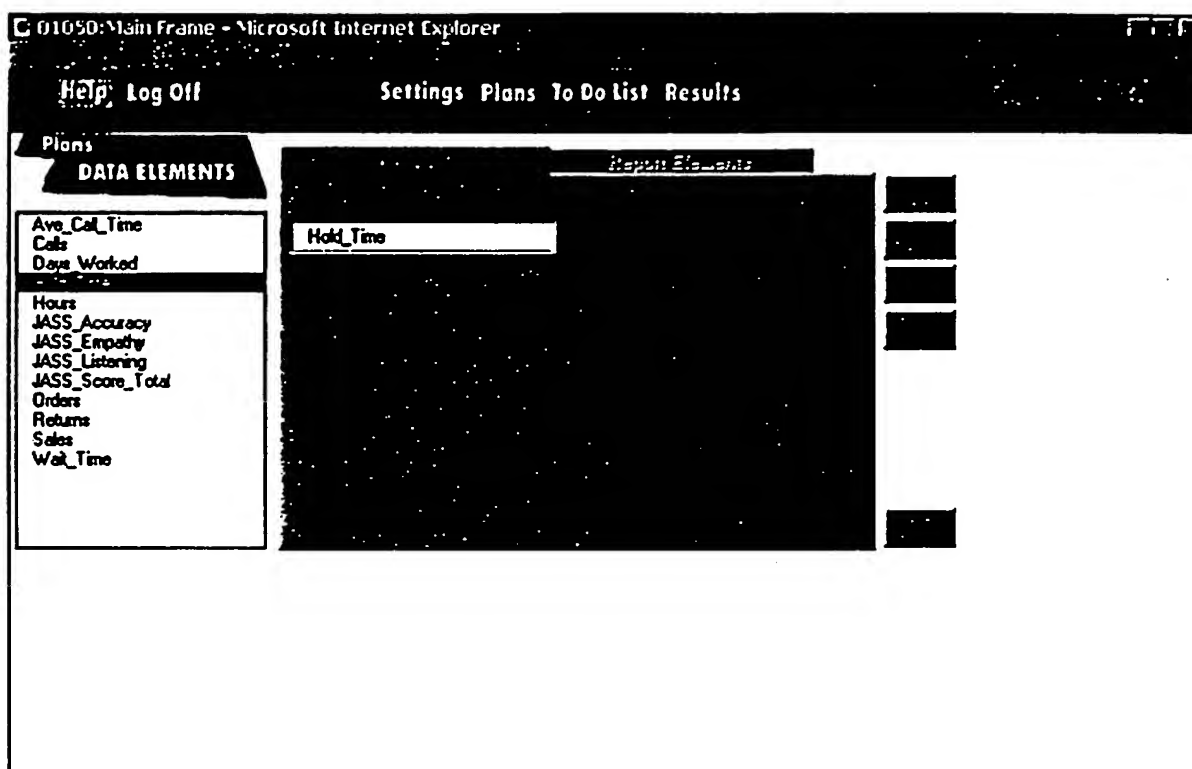


Figure 21. Data Elements Window



Step 2c: Build Expressions

During this step, you will build the equations or expressions used to determine the desired levels of productivity. You will also build the targets for each data element. These targets are used to establish the range of acceptability for each question. Figure 22 shows the window used to build these expressions.

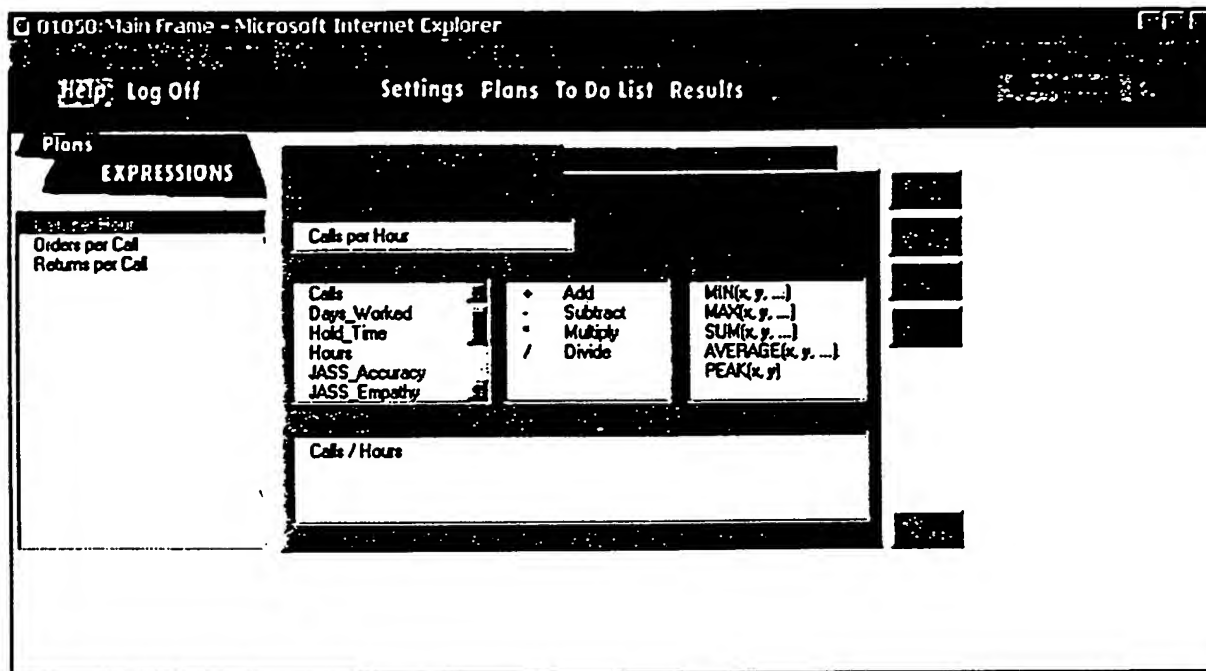


Figure 22. Expressions Window



Step 2d: Identify Performance Areas

Performance areas are groupings of questions and expressions. The number of performance areas are unlimited. During this step, you will group the questions and attach the optional expression or weighted equation.

Figure 23 shows the *Performance Areas* window for entering groups of questions.

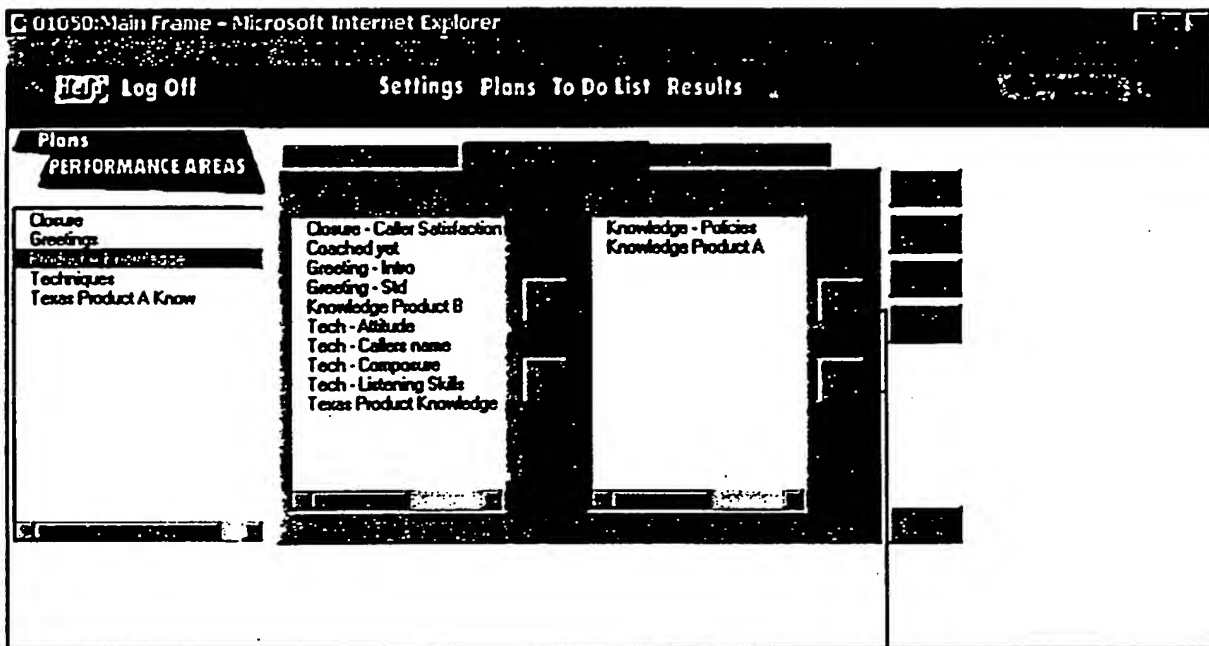


Figure 23. Performance Areas Window

Determines the order that questions will appear on the online evaluation form



Step 2a: Identify Guidelines

Guidelines are groups of performance areas. These guidelines comprise the evaluation form used to evaluate each member. Figure 24 shows the *Guidelines* window for entering groups of performance areas.

The screenshot shows a web browser window titled "01050:Main Frame - Microsoft Internet Explorer". The browser's address bar is empty. The page has a dark header bar with the following menu items: "Help", "Log Off", "Settings", "Plans", "To Do List", and "Results". Below the header, there is a "Plans" tab and a "GUIDELINES" tab. The "GUIDELINES" tab is active, showing a form with the following structure:

- A "Standard" label is positioned to the left of a large text input area.
- A "Texas Standard" label is positioned above a text input area.
- A "Product A Knowledge" label is positioned above a text input area.
- A "Greetings" label is positioned above a text input area.
- A "Texas Product A Know" label is positioned above a text input area.
- A "Techniques" label is positioned above a text input area.
- A "Closure" label is positioned above a text input area.

There are also several empty text input fields on the right side of the form.

Figure 24. Guidelines Window



■ Step 3: Complete To Do List

During this step, you will conduct evaluations to collect necessary qualitative and quantitative data. You will also define the productivity data to be used.



- Conduct Evaluations
- Define Productivity Data

Step 3a: Conduct Evaluation

Once the guideline has been developed, you are ready to conduct the evaluation. You will select the member from the organizations list, select the guideline, and begin the evaluation. Next, you will answer the evaluation questions while listening to the recorded phone message and screen capture, if using Desktop Screen Capture. Figure 25 shows an example of the *Evaluations* window.

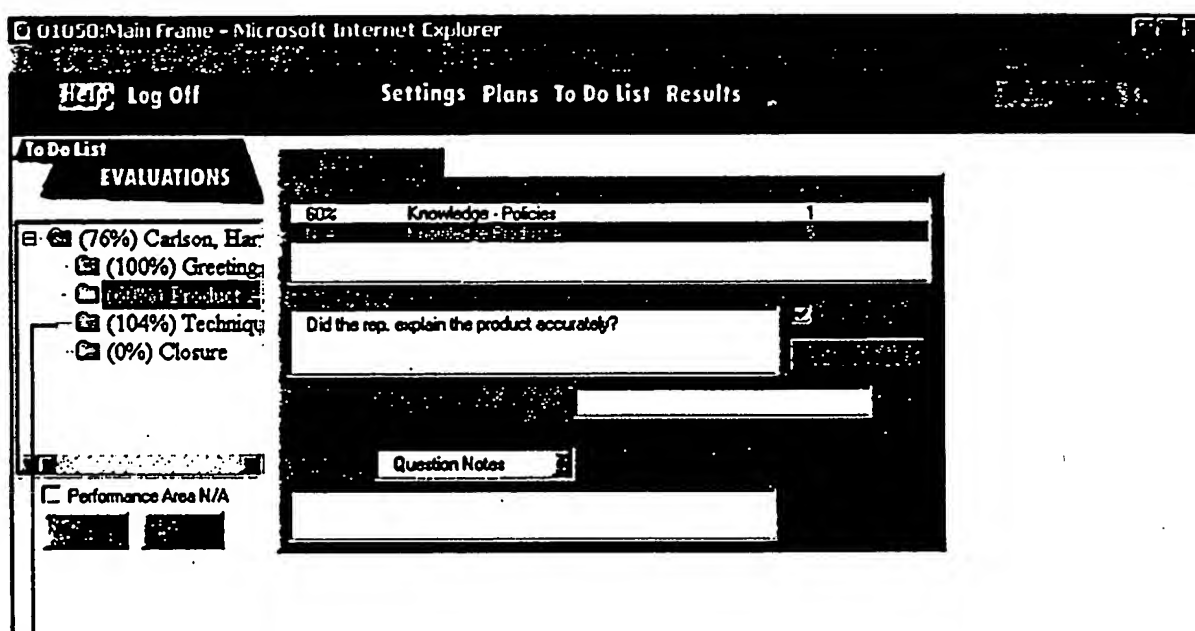


Figure 25. Evaluations Window

Demonstrates the capability of having a performance area score greater than 100%



Step 3b: Define Productivity Data

Productivity data may come from many sources. At this point, you define the information you want to use. For example, you may want to know the number of calls per hour during a six-month period for a particular member. Because you have identified the criteria for this request, you are now able to pull this information in from the other sources.

Figure 26 shows the *Productivity Data* window used to complete this step.

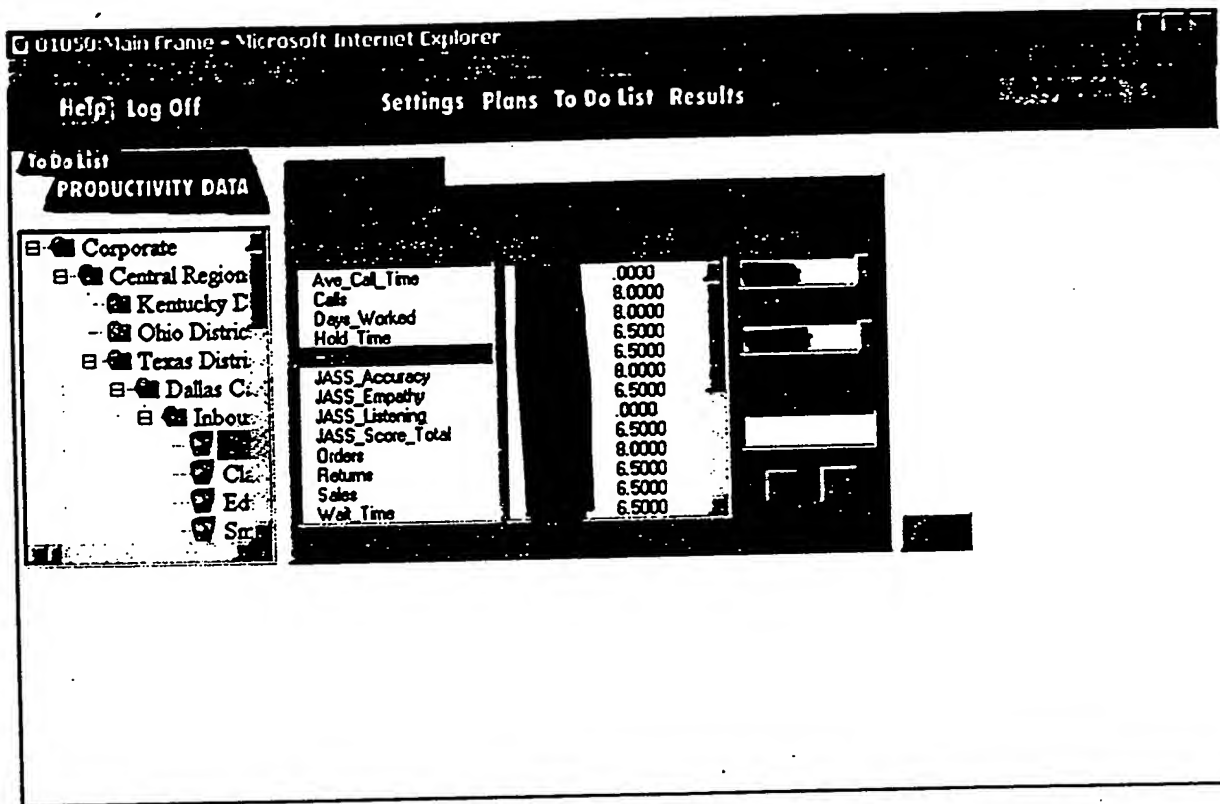


Figure 26. Productivity Data Window



■ Step 4: Produce Results

You can chart and report information with P&Q Review after creating the settings and developing the plans. You are ready to produce the results once this structure is created, evaluations are conducted, and productivity data is imported.



- Select Filters
- Create Charts or Reports

Step 4a: Select Filters

Filters are used to select information for the desired chart or report. You can save two sets of filters at one time to graphically display charts and one set to display reports. These filters include the following:

- Performance area—includes the specific groups of questions to be reported
- Dates—identifies the specific time period to be reported
- Data groups—organizes raw data into like groups for reporting
- Averages—identifies the averages used for reporting
- Keywords—identifies each category that will be included in the report or chart
- Sample size—determines the size limit for each identified sample

Figures 27 through 29 show sample *Filters* windows for determining information to be reported based on performance areas, dates, and keywords.

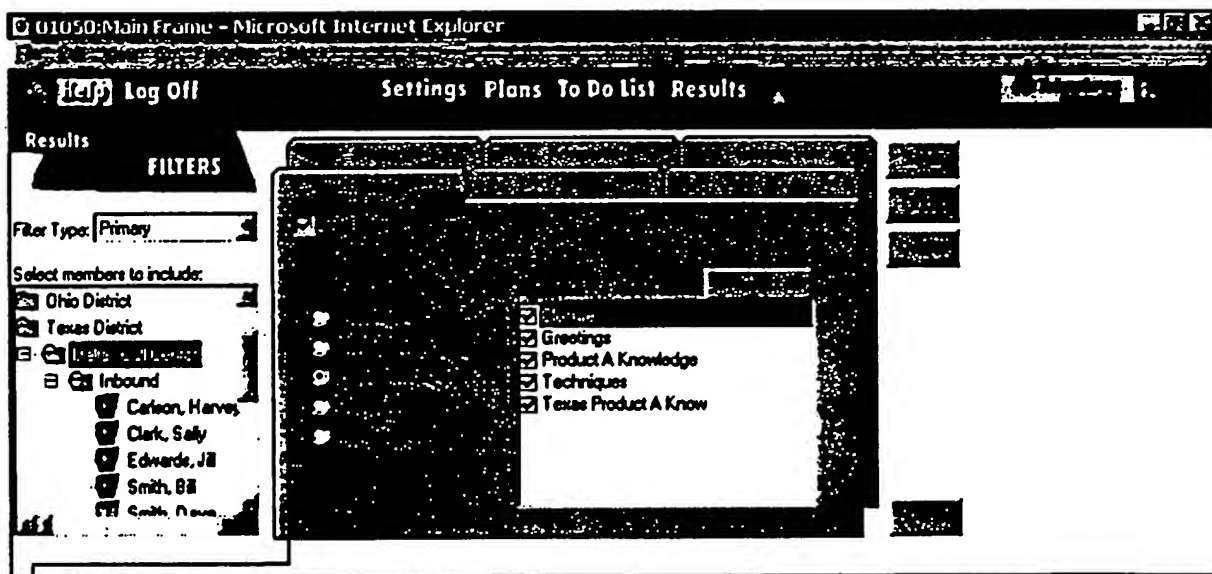


Figure 27. Filters Window for Performance Areas

Allows users to analyze information at various levels of detail



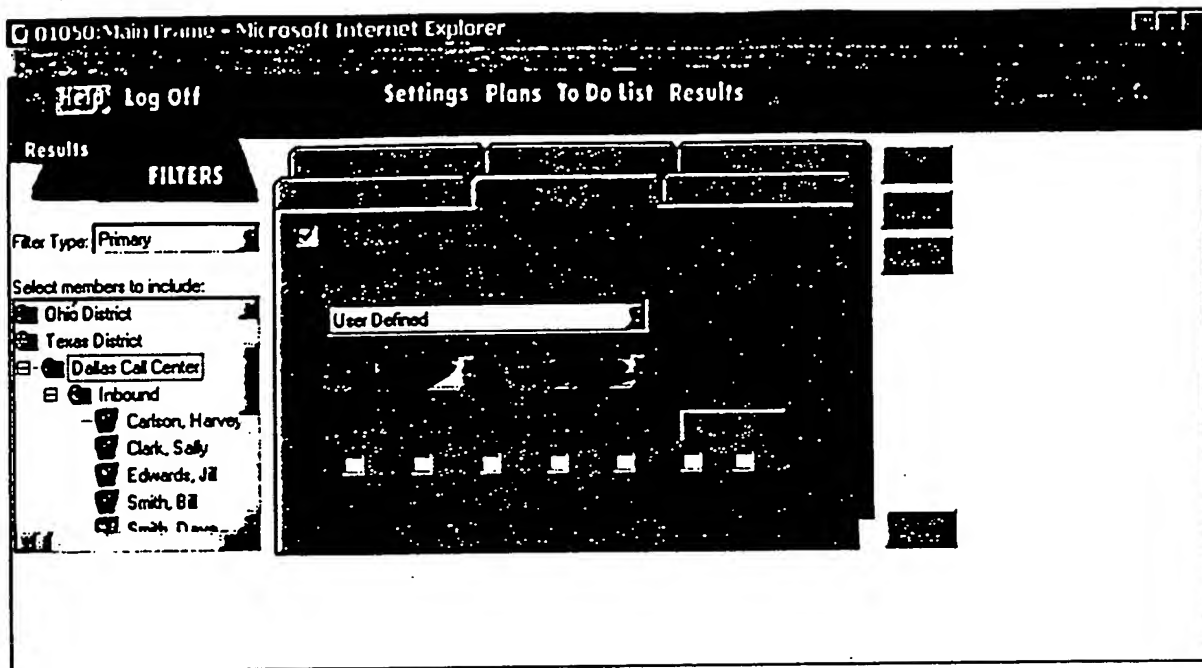


Figure 28. Filters Window for Dates

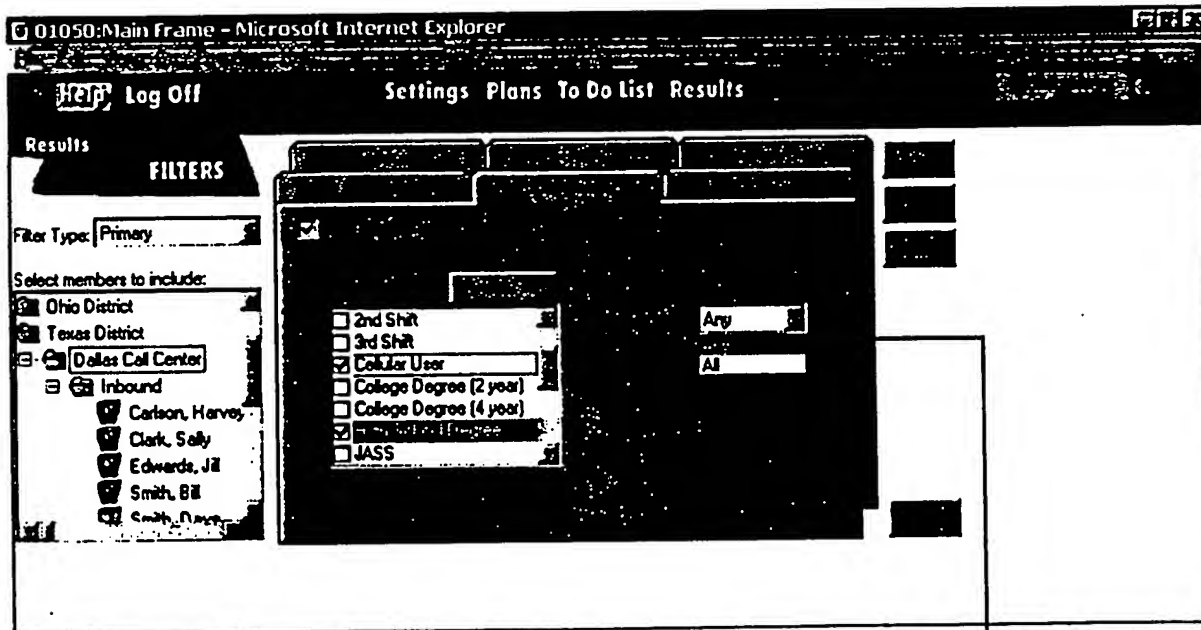


Figure 29. Filters Window for Keywords

Allows users to select "Any" or "All" information included for the selected category



Step 4b: Create Charts or Reports

Once the filters have been determined, you are ready to produce the chart or report. Scatter, line, and trending charts are available. P&Q Review contains standard reports. It will also allow you to produce custom reports and export information to other applications such as Excel if desired.

Figures 30 through 32 show sample charts produced by P&Q Review. Figures 33 through 37 show sample reports, also produced by P&Q Review.

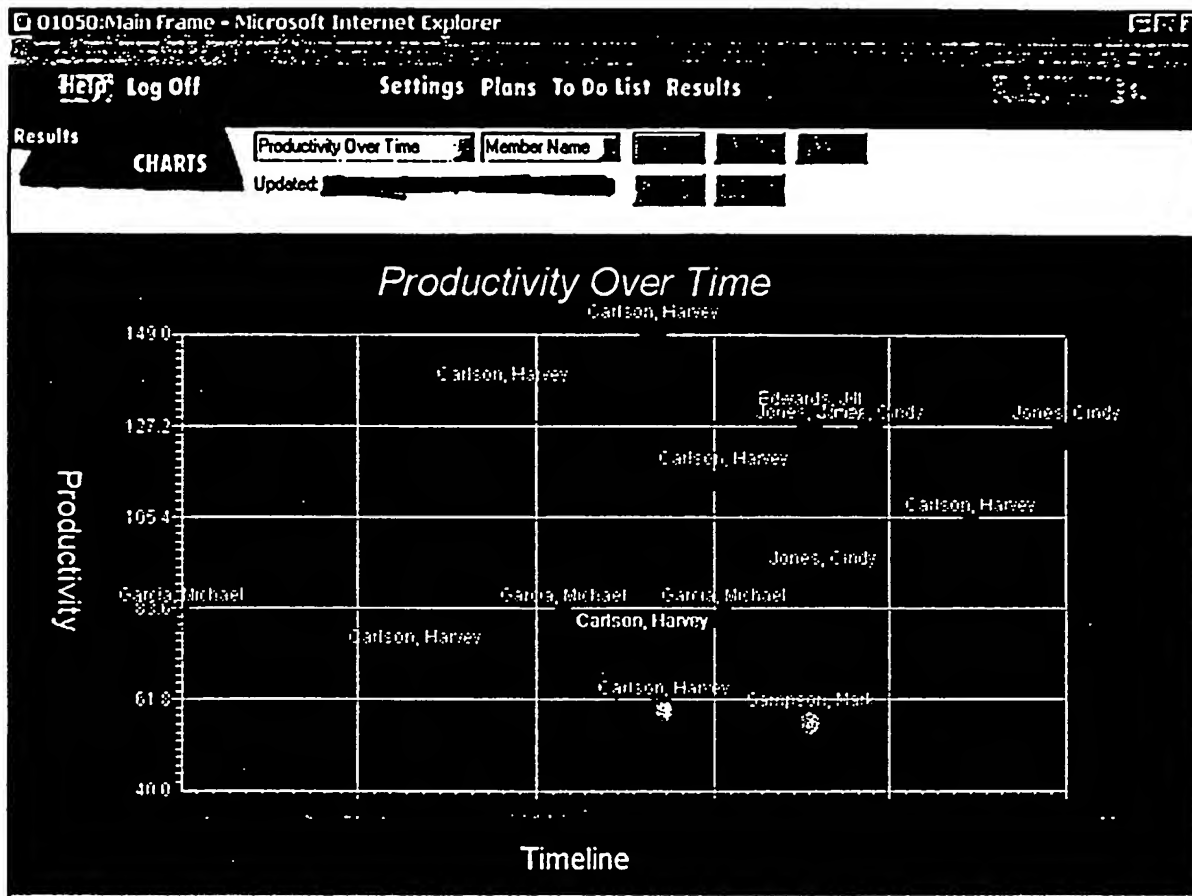


Figure 30. Productivity Over Time Chart



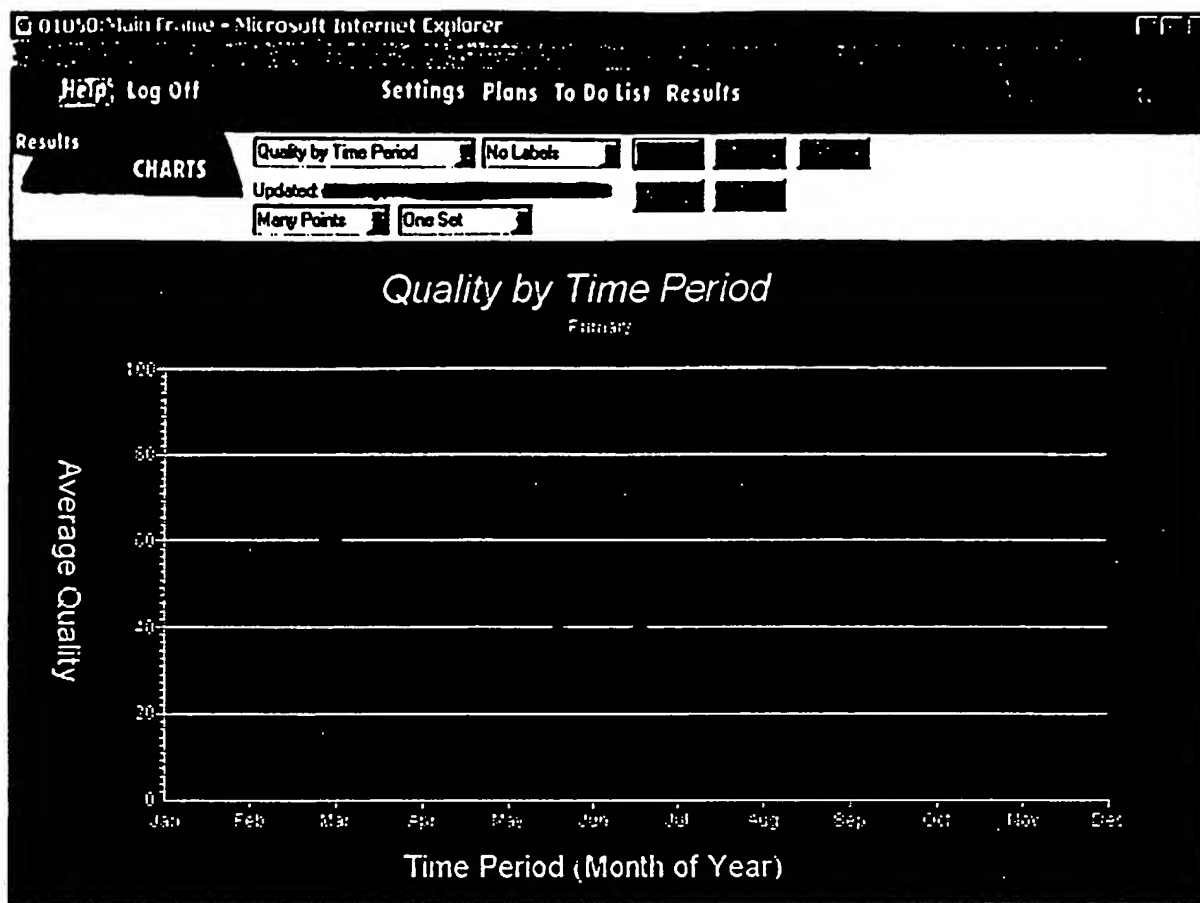


Figure 31. Quality By Time Period Chart



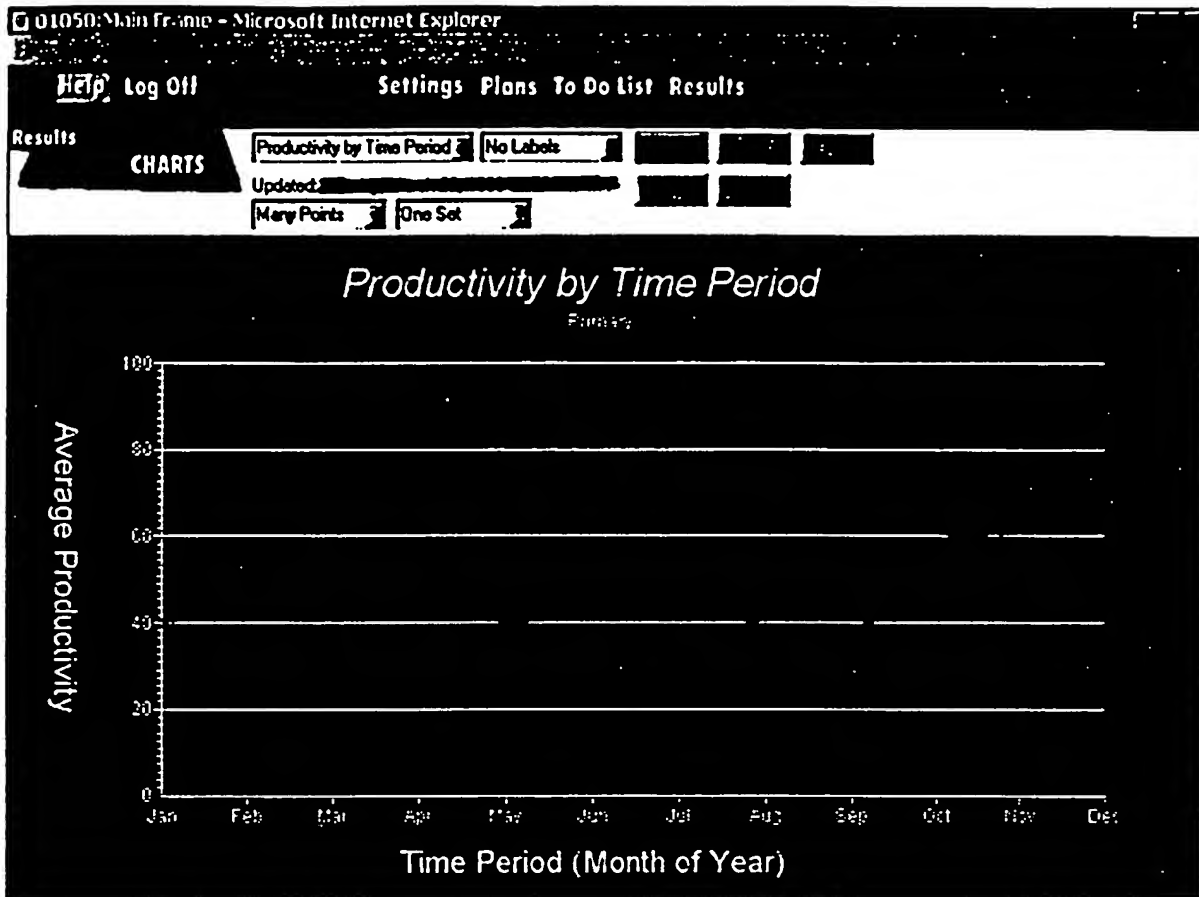


Figure 32. Productivity By Time Period Chart



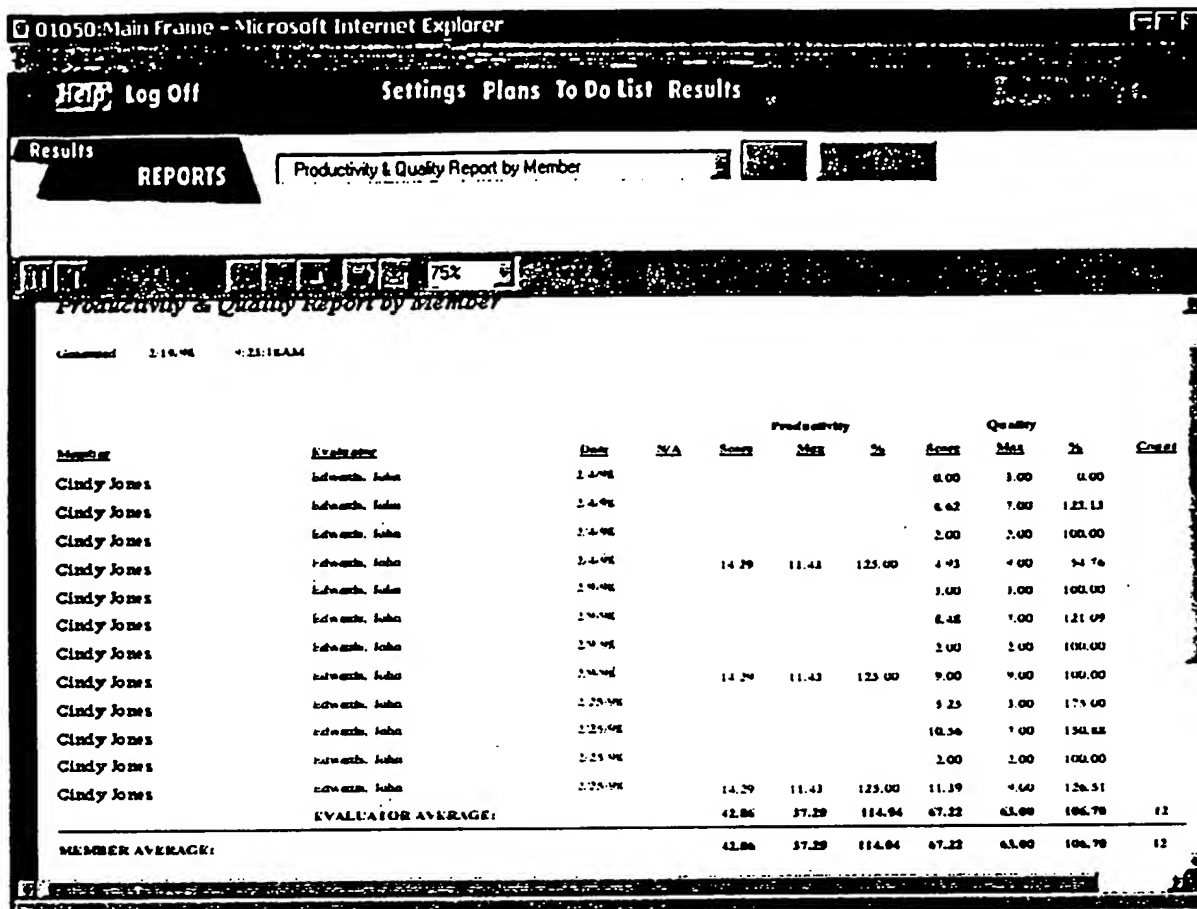


Figure 33. Productivity & Quality Report by Member

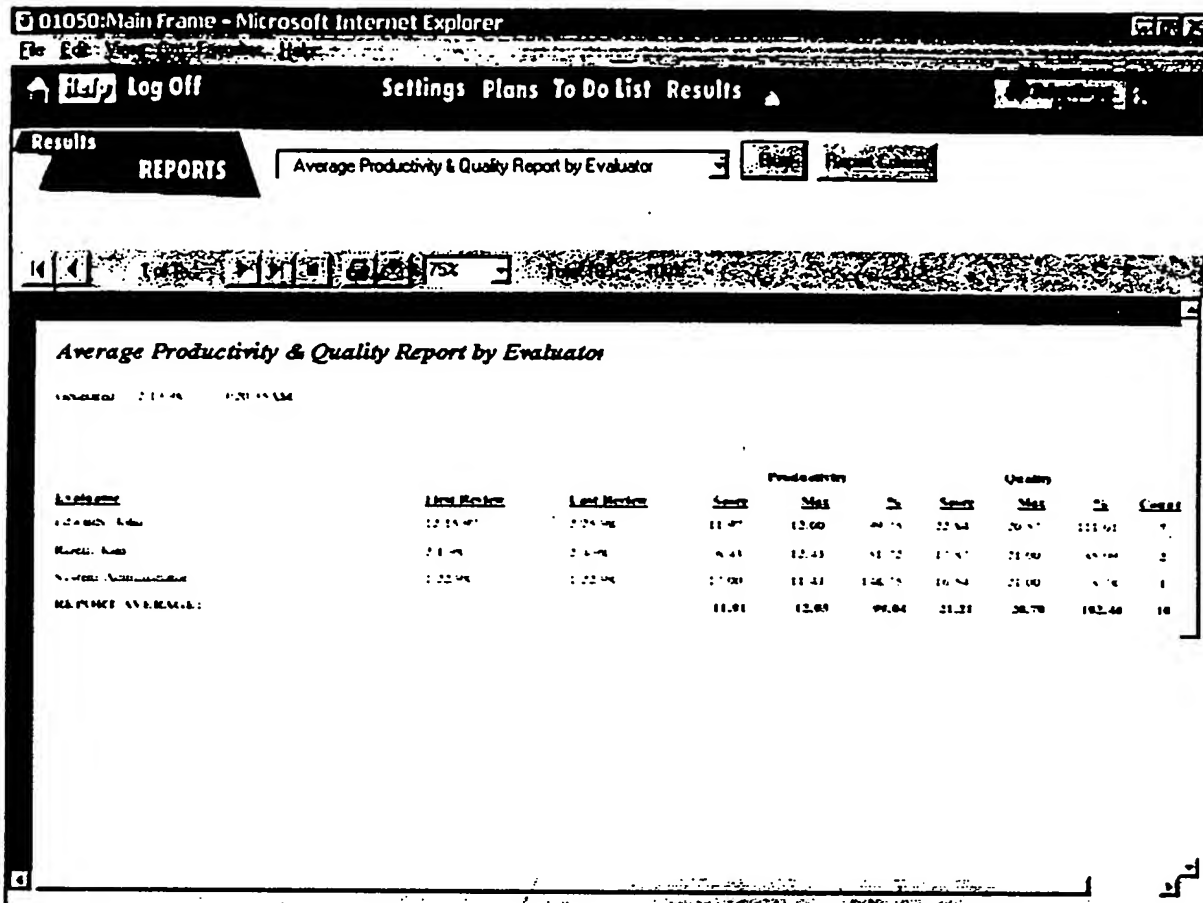


Figure 34. Average Productivity & Quality Report by Evaluator





You will use the following *Export* box to select the format desired and the method used to export the report.

The screenshot shows a web application interface. At the top, there's a navigation bar with 'Log Off', 'Settings', 'Plans', 'To Do List', and 'Results'. Below this, a 'REPORTS' section is active, displaying 'Productivity & Quality Report by Member'. An 'Export' dialog box is open, showing a list of export formats: 'Character-separated values', 'Excel 5.0 (XLS) Tabular', 'HTML 3.0 (Draft Standard)', 'HTML 3.2 (Extended)', 'HTML 3.2 (Standard)', and 'Lotus 1-2-3 (WK1)'. The background table lists members (all named 'Cindy Jones') and their scores across various categories. The table has columns for 'Member', 'Evaluator', 'Score', 'Quality', 'Meta', '2h', and 'Costs'. The 'EVALUATOR AVERAGE' row shows scores of 42.86, 37.29, 114.84, 67.22, 63.00, 106.70, and 12.

Member	Evaluator	Score	Quality	Meta	2h	Costs
Cindy Jones	Full Member, John	0.00	3.00	0.00		
Cindy Jones	Full Member, John	6.62	7.00	1.23.13		
Cindy Jones	Full Member, John	2.00	2.00	100.00		
Cindy Jones	Full Member, John	25.00	4.41	4.00	54.76	
Cindy Jones	Full Member, John	7.00	7.00	100.00		
Cindy Jones	Full Member, John	6.48	7.00	1.21.09		
Cindy Jones	Full Member, John	2.00	2.00	100.00		
Cindy Jones	Full Member, John	14.29	11.43	1.23.00	4.00	4.00
Cindy Jones	Full Member, John	5.25	7.00	1.75.00		
Cindy Jones	Full Member, John	10.56	7.00	1.50.00		
Cindy Jones	Full Member, John	2.00	2.00	100.00		
Cindy Jones	Full Member, John	14.29	11.43	1.23.00	11.39	4.00
EVALUATOR AVERAGE:		42.86	37.29	114.84	67.22	63.00
MEMBER AVERAGE:		42.86	37.29	114.84	67.22	63.00
						12

Figure 36. Format Options When Exporting Reports



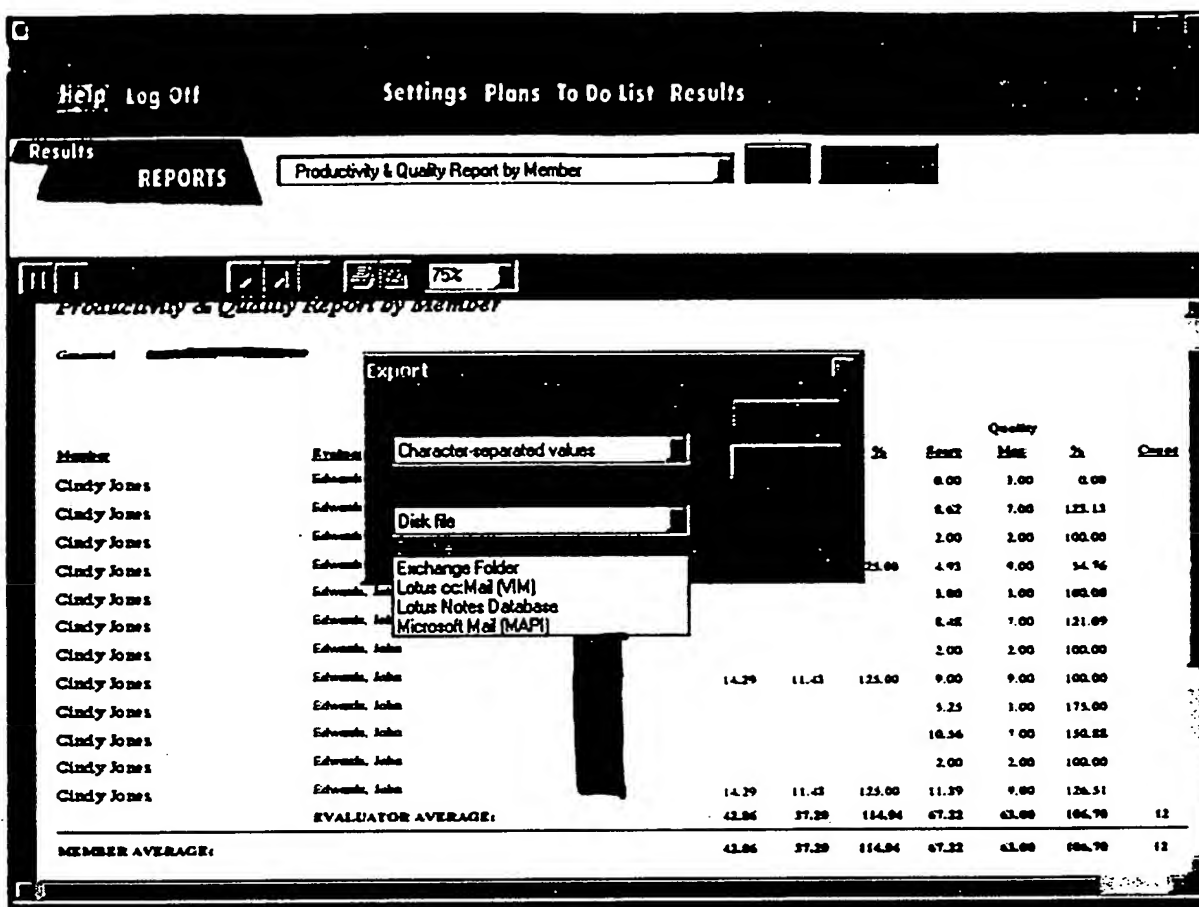


Figure 37. Destination Options When Exporting Reports



■ System Requirements

■ Server

- Microsoft® Windows NT® Server version 4.0 licensed for five or more clients
- Personal computer with a Pentium® 200 or higher processor
- 128 megabytes (MB) of RAM
- CD-ROM drive
- 4 gigabytes (GB) of hard disk space
- TCP/IP connectivity
- 28.8 modem for remote support

Note: Video cards and drivers can affect the appearance of the P&Q Review screens.

■ Client

- Microsoft Windows NT version 4.0 or Windows® 95
- Personal computer with a Pentium processor
- 32 MB of RAM (64 MB recommended)
- 10 MB of free hard disk space (does not include space needed to install Internet Explorer)
- TCP/IP Connectivity

Note: Video cards and drivers can affect the appearance of the P&Q Review screens.



Summary

Data collection is essential to performance management, but the real benefit from a quality program comes when you analyze the data and use it to improve your call center. P&Q Review is a unique program that imports productivity data from your ACD and other business sources and combines it with your quality criteria to give you a complete picture of each agent's performance. Using this online evaluation software, you can measure performance at several levels—from individual agents and agent groups to multiple call centers.

Maintaining outstanding customer service requires you to have the most qualified agents handling customer requests. P&Q Review gives you the tools to evaluate the performance of your agents and determine if they are meeting your standards. P&Q Review can be used as a fair basis for offering employee incentives and as a tool for enhancing training. Agents can use report data to track their own progress using the Internet/Intranet. Supervisors can be evaluated to ensure that they are consistent and unbiased. Supervisors are more efficient because P&Q Review gives them the tools to quickly and consistently evaluate agents.

P&Q Review includes standard reports as well as custom report capabilities. The open architecture of P&Q Review allows you to use a wide variety of commercially available report writers to produce custom-defined reports and charts. The enterprise-wide reporting capabilities also allow you to review the performance of multiple call centers and roll up reports to the corporate level.

In summary, P&Q Review is a dynamic and flexible tool that enables you to customize it to meet your specific business needs. It will grow and change with your call center and help you manage your performance to meet market demands.

